



United States Department of Agriculture

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# **Draft Environmental Impact Statement for the Draft Land Management Plan**

## **Carson National Forest**

### **Volume 2: Appendices**

Rio Arriba, Taos, Mora, and Colfax Counties, New Mexico



Forest Service

Carson National Forest

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## Commonly Used Acronyms

BLM	Bureau of Land Management
CEQ	Council on Environmental Quality
CFR	code of federal regulations
DEIS	draft environmental impact statement
DBH	diameter at breast height
EIS	environmental impact statement
FS	Forest Service
FSH	Forest Service handbook
FSM	Forest Service manual
GIS	geographic information system
MMBF	million board feet
MMCF	million cubic feet
NEPA	National Environmental Policy Act
NF	national forest
NFS	National Forest System
NHPA	National Historic Preservation Act
NM	New Mexico
NMDGF	New Mexico Department of Game and Fish
USDA	U.S. Department of Agriculture
USDI	U.S. Department of Interior
USFWS	U.S. Fish and Wildlife Service

## Plan Codes

Plan components are represented using their alphanumeric identifiers (plan codes) as brief way to reference the plan. The plan codes are made up of 4 parts:

- The level of direction: FW (forestwide), DA (designated area), or MA (management area);
- The resource (e.g. VEG for All Vegetation or WFP for Wildlife, Fish, and Plants);
- The type of direction (DC = desired condition, O = objective, S = standard, and G = guideline); and
- A unique number (i.e. numerical order starting with 1). Abbreviations used for plan codes

Code	Resource or Term	Code	Resource or Term
AIR	Air Resources	NTRL	National Scenic, Historic, and Recreational Trails
ALP	Alpine and Tundra	O	Objective
ASP	Aspen	PART	Partnerships
BOT	Botanical Areas	PJO	Piñon-Juniper Woodland
BP	Bristlecone Pine	PJS	Piñon-Juniper Sagebrush
CAM	Caves and Abandoned Mines	PPF	Ponderosa Pine Forest
CDNST	Continental Divide National Scenic Trail	REC	Recreation
CR	Cultural Resources	RHC	Rural Historic Communities
CRF	Cliffs and Rocky Features	RMZ	Riparian Management Zones
DA	Designated Areas	RWMA	Recommended Wilderness Management Area
DC	Desired Condition	S	Standard
DEVRES	Developed Winter and Summer Resorts	SAGE	Sagebrush
EWSR	Eligible Wild and Scenic Rivers	SAMA	San Antonio Management Area
FAC	Facilities Infrastructure	SCEN	Scenery
FFP	Forestry and Forest Products	SFF	Spruce-Fir Forest
FIRE	Wildland Fire Management	SL	Soil Resources
FRT	Federally Recognized Tribes	SNS	Springs and Seeps
FSR	Forest and Shrub Riparian	STM	Streams
FW	Forestwide	SU	Special Uses
G	Guideline	TFA	Transportation and Forest Access
GMMA	Grassland Maintenance Management Area	VEG	Vegetation
GRZ	Livestock Grazing	VFSYU	Vallecitos Federal Sustained Yield Unit
IRA	Inventoried Roadless Area	VVMA	Valle Vidal Management Area
JICMA	Jicarilla Natural Gas Management Area	WB	Waterbodies
LAND	Lands	WFP	Wildlife, Fish, and Plants
MA	Management Area	WHT	Wild Horse Territories
MCD	Mixed Conifer, with Frequent Fire	WILD	Existing Wilderness
MCW	Mixed Conifer, with Aspen	WR	Wetland Riparian
MM	Minerals and Mining	WSW	Watersheds and Water
MSG	Montane Subalpine Grassland	WSR	Existing Wild and Scenic Rivers
NIS	Nonnative Invasive Species	ZOO	Zoological Areas
NSBW	National Scenic Byway		

The final environmental impact statement will include responses to comments received on the draft environmental impact statement as **Appendix A – Response to Comments**.

# Appendix B – Description of Alternatives

This appendix describes each alternative and the specific changes to plan content that reflect the theme of that alternative. The draft land management plan (hereinafter referred to as “the draft plan”) is described in alternative 2. Alternatives 3, 4, and 5 are the same as alternative 2, except as noted in this section. Only those plan components and other plan content (e.g., management area descriptions) that differ among alternatives are listed in this appendix. If a component or other content from the draft plan is not shown below, it means it is consistent across all plan alternatives.

## Description of Alternatives

### Alternative 1 (Current 1986 Plan)

The regulations for implementing the National Environmental Policy Act (NEPA) require the alternatives analysis in an environmental impact statement to “include the alternative of no action” (40 CFR 1502.14(d)). There are two distinct interpretations of “no action” that must be considered, depending on the nature of the proposal being evaluated. In the situation that involves an action such as revising a land management plan, the “no action” is “no change” from current management direction or level of management intensity. To construct an alternative that is based on no management at all would be a useless academic exercise. Therefore, the “no-action” alternative may be thought of in terms of continuing with the present course of action until that action is changed. Consequently, projected impacts of alternative management schemes are compared in the environmental impact statement to those impacts projected for the Carson National Forest’s existing plan. In this case, alternatives would include management plans of both greater and lesser intensity, especially greater and lesser levels of resource development.

Alternative 1 is the Carson National Forest’s current plan (1986), which is over 30-years old. It emphasizes producing timber products; managing quality habitat for Mexican spotted owl and northern goshawk and its prey; providing recreation opportunities to meet demand; and range management. The current plan has no articulated desired conditions for wetlands, seeps and springs, and various riparian ecosystems. It does not recognize the traditional communities and uses that occur on the Carson National Forest or reflect changes in economic, social, and ecological conditions, new policies and priorities, and new information based on monitoring and scientific research. Since this alternative reflects no change in current management, no additional wilderness is recommended. This alternative provides a baseline for estimating the effects of the other alternatives.

### Alternative 2 (Draft Plan)

Alternative 2 is the draft plan and was developed to respond to key issues identified during the assessment and public comment period. This alternative provides for restoration and diverse ecosystem services.<sup>1</sup> Alternative 2 addresses the need to better recognize and enhance the Carson National Forest’s role in contributing to local economies, including service-based sectors such as recreation and tourism, timber and forest products, livestock grazing, and other multiple-use related activities and products. Alternative 2

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<sup>1</sup> Ecosystem services are benefits people obtain from ecosystems, including: provisioning services (e.g., clean air, fresh water, energy, food, fuel, forage, wood products or fiber, and minerals); regulating services (e.g., long-term storage of carbon, climate regulation, water filtration, purification, and storage; soil stabilization, flood and drought control, and disease regulation; supporting services (e.g., pollination, seed dispersal, soil formation, and nutrient cycling); and cultural services (e.g., educational, aesthetic, spiritual, and cultural heritage values, recreational experiences, and tourism opportunities).

also includes plan direction that allows for adaptive management, in order to address resource areas at risk of not providing ecosystem services in the future. These include:

- Forested fire dependent ecosystems are departed and prone to uncharacteristic stand replacing fire.
- Grassland communities and herbaceous understories are less productive than they were historically.
- Surface water is at risk across much of the forest, due to temperature, turbidity, and degraded riparian and aquatic condition and function.
- The ability of the Carson National Forest to remain relevant and responsive to changing recreation user demands is at risk of being unsustainable.
- The ability of the Carson National Forest to continue contributing to the social and economic benefits desired by local communities and the visiting public is at risk of being unsustainable.

Alternative 2 proposes roughly 9,189 acres of recommended wilderness.

### **Alternative 3**

Alternative 3 was developed to respond to requests for more motorized recreation opportunities, enhanced mountain bike trails, and increased opportunity for fuelwood and timber production for local economic development. This alternative also addresses public comments from those who do not want any additional wilderness on the Carson National Forest.

Alternative 3 emphasizes mechanical treatments for restoration. This alternative deemphasizes road decommissioning and looks for opportunities to convert nonsystem routes to off-highway vehicle and/or mountain bike trails. This alternative does not propose any recommended wilderness areas, to maximize the areas suitable for timber production and to respond to requests for no new wilderness. Neither Valle Vidal nor the San Antonio management areas are included in this alternative. Alternative 3 adds the off-highway vehicle management area to provide off-highway vehicle use in a rugged terrain on the Camino Real Ranger District. Developed winter and summer resort management area is enlarged by 921 acres to allow for possible future expansion of the Sipapu Ski Area. Any such expansion would be analyzed under a separate decision, and subject to all relevant laws and other plan direction.

### **Alternative 4**

Alternative 4 was developed to respond to requests to do less restoration through mechanical means and instead use natural processes as a management tool. This alternative also addresses public comments from those who want greater protections for water resources (specifically key wetlands), wildlife movement (specifically big game migration routes), and areas supporting Rio Grande cutthroat trout, and less motorized use. This alternative also addresses public comments from those who want more wilderness on the Carson National Forest.

Alternative 4 emphasizes the use of fire for restoration and decreases the use of mechanical treatments as a restoration tool. This alternative stresses road decommissioning and obliteration of Forest Service system and non-system roads, as well as temporary roads. To respond to requests for more wilderness and primitive non-motorized areas on the forest, alternative 4 proposes roughly 48,897 acres of recommended wilderness. This would reduce areas suitable for timber production and motorized and mechanized use. Overall, alternative 4 would decrease motorized use, both winter over-snow and motor vehicle use. Like alternative 2, Valle Vidal is identified as a management area (VVMA) in this alternative, but with added protections, including no timber harvesting. This alternative would also expand the San Antonio Management Area (SAMA) proposed in alternative 2, to include Cebolla Mesa on the east side of the Rio Grande Gorge. San Antonio Management Area includes objectives for wildlife connectivity, standards for

seasonal road closures, and restrictions in the management of vegetation. Alternative 4 adds the Wetland Jewels management area (WJMA), to recognize 10 areas on the forest that are significant wetlands and need added protections. Wetland Jewels management area includes objectives that prioritize work around wetlands and prohibits new roads, military ground operations, new utility infrastructure, or the establishment of new mineral rights. The Rio Grande cutthroat trout management area (RGCTMA) is added under this alternative to identify areas on the Carson National Forest where restoration of Rio Grande cutthroat trout habitat should be emphasized.

## Alternative 5

Alternative 5 was developed to respond to requests that all of the areas evaluated to have wilderness characteristics on the Carson National Forest need to be recommended for wilderness.

Alternative 5 emphasizes wilderness opportunities of solitude, apparent naturalness, and non-motorized or mechanized recreation in a primitive setting. Since not all of the evaluated areas fit into the other alternative themes, this alternative responds to the request that at least one alternative analyze 100 percent of the areas with wilderness characteristics. Alternative 5 also includes all of the forestwide plan components, designated areas, and management areas identified in alternative 2, but proposes as recommended wilderness all 13 areas (67,996 acres) identified as having wilderness characteristics.

## Differences Among the Revised Plan Alternatives

This section lists only those plan components in alternatives 3, 4 and 5 that would differ from alternative 2, the draft proposed plan.

### Forestwide Plan Components

#### Ecological Sustainability and Diversity of Plant and Animal Communities

##### *Mixed Conifer with Frequent Fire (VEG-MCD)*

#### **Mixed Conifer with Frequent Fire Objectives (FW-VEG-MCD-O)**

##### **Objective 1**

**Alternative 2:** Mechanically treat at least 5,500–10,000 acres, during each 10-year period following plan approval.

**Alternative 3:** Mechanically treat at least 15,000–30,000 acres, during each 10-year period following plan approval.

**Alternative 4:** [Objective is removed]

**Alternative 5:** [Objective is the same as alternative 2]

##### **Objective 2**

**Alternative 2:** During each 10-year period following plan approval, treat at least 20,000–40,000 acres using a combination of prescribed fire and naturally ignited wildfire to make progress toward or to maintain desired conditions.

**Alternative 3:** [Objective is the same as alternative 2]

**Alternative 4:** During each 10-year period following plan approval, treat at least 25,000–50,000 acres using a combination of prescribed fire and naturally ignited wildfire to make progress toward or to maintain desired conditions.

**Alternative 5:** [Objective is the same as alternative 2]

*Ponderosa Pine Forest (VEG-PPF)*

**Ponderosa Pine Forest Objectives (FW-VEG-PPF-O)**

**Objective 1**

**Alternative 2:** Mechanically treat at least 22,000–50,000 acres, during each 10-year period following plan approval.

**Alternative 3:** Mechanically treat at least 50,000–100,000 acres, during each 10-year period following plan approval.

**Alternative 4:** [Objective is removed]

**Alternative 5:** [Objective is the same as alternative 2]

**Objective 2**

**Alternative 2:** During the 10 years following plan approval, treat at least 80,000–125,000 acres using a combination of prescribed fire and naturally ignited wildfire to make progress toward or maintain desired conditions.

**Alternative 3:** [Objective is the same as alternative 2]

**Alternative 4:** During the 10 years following plan approval, treat at least 100,000–175,000 acres using a combination of prescribed fire and naturally ignited wildfire to make progress toward or maintain desired conditions.

**Alternative 5:** [Objective is the same as alternative 2]

*Riparian Management Zones (WSW-RMZ)*

**Riparian Management Zone Objectives (FW-WSW-RMZ-O)**

**Objective 1**

**Alternative 2:** Restore structure and function of at least 200–300 acres of nonfunctioning and functioning-at-risk riparian areas annually. Treatments align with priority watersheds.

**Alternative 3:** [Objective is the same as alternative 2]

**Alternative 4:** [Objective is moved to MA-WJMA-O in this alternative]

**Alternative 5:** [Objective is the same as alternative 2]

*Streams (WSW-RMZ-STM)*

**Stream Desired Conditions (FW-WSW-RMZ-STM-DC)**

**Desired Condition 2**

**Alternative 2:** Stream ecosystems, including ephemeral watercourses are not fragmented by infrastructure or development, except when the fragmentation serves to protect native aquatic species from nonnative aquatic species. Streams provide connectivity important for dispersal, access to new habitats, perpetuation of genetic diversity, as well as nesting and foraging for at-risk species.

**Alternative 3:** [Desired condition is the same as alternative 2]

**Alternative 4:** Stream ecosystems, including ephemeral watercourses are not fragmented by infrastructure or development. Streams provide connectivity important for dispersal, access to new habitats, perpetuation of genetic diversity, as well as nesting and foraging for at-risk species.

**Alternative 5:** [Desired condition is the same as alternative 2]

*Springs and Seeps Standards (FW-WSW-RMZ-SNS)*

**Springs and Seeps Standards (FW-WSW-RMZ-SNS-S)**

**Standard 2**

**Alternative 2:** [No such standard]

**Alternative 3:** [No such standard]

**Alternative 4:** No new spring development shall be allowed.

**Alternative 5:** [No such standard]

*Wildlife, Fish, and Plants (WFP)*

**Wildlife, Fish, and Plant Objectives (FW-WFP-O)**

**Objective 3**

**Alternative 2:** Reduce nonnative fish within native fish populations in 4 to 6 stream reaches, during each 10-year period following plan approval.

**Alternative 3:** [Objective is the same as alternative 2]

**Alternative 4:** [Moved to MA-RGCTMA-O in this alternative]

**Alternative 5:** [Objective is the same as alternative 2]

**Objective 4**

**Alternative 2:** Improve wildlife or aquatic habitat connectivity by removing unneeded structures (e.g., fences, roads, cattleguards, culverts, and spring developments) or completing improvement projects (e.g., removing barriers and connecting fragmented habitat) in at least 10 to 20 locations, during each 10-year period following plan approval.

**Alternative 3:** [Objective is the same as alternative 2]

**Alternative 4:** [Moved to MA-SAMA-O in this alternative]

**Alternative 5:** [Objective is the same as alternative 2]

#### Objective 5

**Alternative 2:** Complete at least five projects to improve habitat connectivity for aquatic and riparian species (e.g., remove barriers, restore dewatered stream segments, connect fragmented habitat, wildlife passage friendly fences, etc.), during the 10 years following plan approval.

**Alternative 3:** [Objective is the same as alternative 2]

**Alternative 4:** [Moved to MA-SAMA-O in this alternative]

**Alternative 5:** [Objective is the same as alternative 2]

### Social, Cultural, and Economic Sustainability and Multiple Use

#### *Sustainable Rangelands and Livestock Grazing (GRZ)*

#### **Livestock Grazing Standards (FW-GRZ-S)**

##### **Standard 4**

**Alternative 2:** Domestic sheep allotments shall be managed (e.g., fencing, increased herding, herding dogs, potential vaccine, or other scientifically supported strategies) to mitigate the potential transfer of disease from domestic sheep to bighorn sheep, wherever bighorn sheep occur.

**Alternative 3:** [Same as alternative 2]

**Alternative 4:** Domestic sheep grazing allotments shall not be authorized within bighorn sheep occupied habitat to mitigate the potential transfer of disease from domestic sheep to bighorn sheep.

**Alternative 5:** [Same as alternative 2]

#### *Sustainable Forestry and Forest Products (FFP)*

#### **Timber Suitability – Alternative 2**

**Table 1. Timber production suitability classification for the Carson National Forest (alternative 2)**

Land Classification Category	Area (acres)
A. <b>Total</b> National Forest System lands in the plan area	1,486,353
B. Lands <b>not suitable</b> for timber production due to legal or technical reasons	1,021,003
C. Lands that <b>may be suitable</b> for timber production (A–B)	465,350
D. Total lands <b>suitable</b> for timber production because timber production is compatible with the desired conditions and objectives established by the plan	455,844
E. Lands <b>not suitable</b> for timber production because timber production is not compatible with the desired conditions and objectives established by the plan (C–D)	9,506
F. Total lands <b>not suitable</b> for timber production (B+E)	1,030,509

### Timber Suitability – Alternative 3

**Table 2. Timber production suitability classification for the Carson National Forest (alternative 3)**

Land Classification Category	Area (acres)
A. <b>Total</b> National Forest System lands in the plan area	1,486,353
B. Lands <b>not suitable</b> for timber production due to legal or technical reasons	1,021,003
C. Lands that <b>may be suitable</b> for timber production (A–B)	465,350
D. Total lands <b>suitable</b> for timber production because timber production is compatible with the desired conditions and objectives established by the plan	458,724
E. Lands <b>not suitable</b> for timber production because timber production is not compatible with the desired conditions and objectives established by the plan (C–D)	6,626
F. Total lands <b>not suitable</b> for timber production (B+E)	1,027,629

### Timber Suitability – Alternative 4

**Table 3. Timber production suitability classification for the Carson National Forest (alternative 4)**

Land Classification Category	Area (acres)
A. Total National Forest System lands in the plan area	1,486,353
B. Lands not suitable for timber production due to legal or technical reasons	1,021,003
C. Lands that may be suitable for timber production (A–B)	465,350
D. Total lands suitable for timber production because timber production is compatible with the desired conditions and objectives established by the plan	351,970
E. Lands not suitable for timber production because timber production is not compatible with the desired conditions and objectives established by the plan (C–D)	113,380
F. Total lands not suitable for timber production (B+E)	1,134,383

### Timber Suitability – Alternative 5

**Table 4. Timber production suitability classification for the Carson National Forest (alternative 5)**

Land Classification Category	Area (acres)
A. Total National Forest System lands in the plan area	1,486,353
B. Lands not suitable for timber production due to legal or technical reasons	1,021,003
C. Lands that may be suitable for timber production (A–B)	465,350
D. Total lands suitable for timber production because timber production is compatible with the desired conditions and objectives established by the plan	440,550
E. Lands not suitable for timber production because timber production is not compatible with the desired conditions and objectives established by the plan (C–D)	24,800
F. Total lands not suitable for timber production (B+E)	1,045,803

## Projected Harvest Levels – Alternative 2

**Table 5. Projected timber and wood product harvest levels on lands suitable and not suitable for timber production in alternative 2**

<b>Timber And Wood Product Harvest Category</b>	<b>MMCF First Decade</b>	<b>MMBF First Decade</b>	<b>Tons First Decade</b>	<b>MMCF Second Decade</b>	<b>MMBF Second Decade</b>	<b>Tons Second Decade</b>
Lands Suitable for Timber Production <sup>1</sup> <b>A1. Sawtimber</b> (industrial softwoods, 9 inches or more)	12.9	60.3	192,729	13.3	64.6	196,476
Lands Suitable for Timber Production <sup>1</sup> <b>A2. Other Products</b> (industrial softwood, 5–9 inches roundwood, commonly pulpwood, mostly in the form of fuelwood)	2.4	NA	102,519	2.1	NA	82,378
Lands Not Suitable for Timber Production <sup>1</sup> <b>B1. Sawtimber</b> (9 inches+)	20.8	98.1	311,883	22.9	113.2	33,8618
Lands Not Suitable for Timber Production <sup>1</sup> <b>B2. Other Products</b> (5–9 inches)	4.1	NA	13,6559	3.6	NA	11,2010
<b>C. Projected Timber Sale Quantity</b> (PTSQ) (A1+A2+B1+B2)	40.1	158.5	743,689	41.9	177.8	729,482
Other Estimated Wood Products <sup>2</sup> <b>D1. Non-industrial softwood fuelwood</b> (5 inches+)	5.9	1.6	6.5	1.8	5.9	1.6
Other Estimated Wood Products <sup>2</sup> <b>D2. Hardwood fuelwood</b> (5 inches+)	1.1	0.4	1.0	0.4	1.1	0.4
Other Estimated Wood Products <sup>2</sup> <b>D3. Aspen</b> (5 inches+)	0.7	0.2	0.6	0.1	0.7	0.2
<b>E. Projected Wood Sale Quantity</b> (PWSQ) (C+D1+D2+D3)	47.8	743,692	50.0	729,484	47.8	743,692

1. Volumes other than salvage or sanitation that meet timber product utilization standards

2. Fuelwood, biomass, and other volumes that do not meet timber product utilization standards.

MMCF = million cubic feet; MMBF = million board feet; NA = not applicable.

### Projected Harvest Levels – Alternative 3

**Table 6. Projected timber and wood product harvest levels on lands suitable and not suitable for timber production in alternative 3**

<b>Timber And Wood Product Harvest Category</b>	<b>MMCF First Decade</b>	<b>MMBF First Decade</b>	<b>Tons First Decade</b>	<b>MMCF Second Decade</b>	<b>MMBF Second Decade</b>	<b>Tons Second Decade</b>
Lands Suitable for Timber Production <sup>1</sup> <b>A1. Sawtimber</b> (industrial softwoods, 9 inches or more)	36.4	170.7	544,950	24.2	115.6	358,854
Lands Suitable for Timber Production <sup>1</sup> <b>A2. Other Products</b> (industrial softwood, 5–9 inches roundwood, commonly pulpwood, mostly in the form of fuelwood)	6.3	NA	162,194	3.8	NA	108,995
Lands Not Suitable for Timber Production <sup>1</sup> <b>B1. Sawtimber</b> (9 inches+)	51.4	247.0	769,052	28.3	139.0	417,979
Lands Not Suitable for Timber Production <sup>1</sup> <b>B2. Other Products</b> (5–9 inches)	9.2	NA	210,073	5.0	NA	132,262
<b>C. Projected Timber Sale Quantity</b> (PTSQ) (A1+A2+B1+B2)	103.4	417.7	1,686,271	61.2	254.7	1,018,092
Other Estimated Wood Products <sup>2</sup> <b>D1. Non-industrial softwood fuelwood</b> (5 inches+)	7.7	NA	2.1	7.0	NA	1.9
Other Estimated Wood Products <sup>2</sup> <b>D2. Hardwood fuelwood</b> (5 inches+)	3.4	NA	1.3	1.6	NA	0.6
Other Estimated Wood Products <sup>2</sup> <b>D3. Aspen</b> (5 inches+)	3.0	NA	0.7	2.1	NA	0.5
<b>E. Projected Wood Sale Quantity</b> (PWSQ) (C+D1+D2+D3)	117.6	NA	1,686,275	72.0	NA	1,018,095

1. Volumes other than salvage or sanitation that meet timber product utilization standards

2. Fuelwood, biomass, and other volumes that do not meet timber product utilization standards.

MMCF = million cubic feet; MMBF = million board feet; NA = not applicable.

## Projected Harvest Levels – Alternative 4

**Table 7. Projected timber and wood product harvest levels on lands suitable and not suitable for timber production in alternative 4**

<b>Timber And Wood Product Harvest Category</b>	<b>MMCF First Decade</b>	<b>MMBF First Decade</b>	<b>Tons First Decade</b>	<b>MMCF Second Decade</b>	<b>MMBF Second Decade</b>	<b>Tons Second Decade</b>
Lands Suitable for Timber Production <sup>1</sup> <b>A1.</b> Sawtimber (industrial softwoods, 9 inches or more)	1.6	7.2	24,545	1.8	8.4	26,412
Lands Suitable for Timber Production <sup>1</sup> <b>A2.</b> Other Products (industrial softwood, 5–9 inches roundwood, commonly pulpwood, mostly in the form of fuelwood)	0.4	NA	57,155	0.3	NA	44,116
Lands Not Suitable for Timber Production <sup>1</sup> <b>B1.</b> Sawtimber (9 inches+)	2.4	10.8	36,388	2.2	10.2	33,229
Lands Not Suitable for Timber Production <sup>1</sup> <b>B2.</b> Other Products (5–9 inches)	0.8	NA	106,493	0.7	NA	83,230
<b>C. Projected Timber Sale Quantity (PTSQ) (A1+A2+B1+B2)</b>	5.2	18.0	224,582	5.0	18.5	186,988
Other Estimated Wood Products <sup>2</sup> <b>D1.</b> Non-industrial softwood fuelwood (5 inches+)	1.8	NA	0.5	2.3	NA	0.6
Other Estimated Wood Products <sup>2</sup> <b>D2.</b> Hardwood fuelwood (5 inches+)	0.3	NA	0.1	0.2	NA	0.1
Other Estimated Wood Products <sup>2</sup> <b>D3.</b> Aspen (5 inches+)	0.4	NA	0.1	0.2	NA	0.1
<b>E. Projected Wood Sale Quantity (PWSQ) (C+D1+D2+D3)</b>	7.6	NA	224,583	7.8	NA	186,989

1. Volumes other than salvage or sanitation that meet timber product utilization standards.

2. Fuelwood, biomass, and other volumes that do not meet timber product utilization standards.

MMCF = million cubic feet; MMBF = million board feet; NA = not applicable.

## Projected Harvest Levels – Alternative 5

**Table 8. Projected timber and wood product harvest levels on lands suitable and not suitable for timber production in alternative 5**

<b>Timber And Wood Product Harvest Category</b>	<b>MMCF First Decade</b>	<b>MMBF First Decade</b>	<b>Tons First Decade</b>	<b>MMCF Second Decade</b>	<b>MMBF Second Decade</b>	<b>Tons Second Decade</b>
Lands Suitable for Timber Production <sup>1</sup> <b>A1.</b> Sawtimber (industrial softwoods, 9 inches or more)	12.6	59.0	188,639	13.0	63.3	192,583
Lands Suitable for Timber Production <sup>1</sup> <b>A2.</b> Other Products (industrial softwood, 5–9 inches roundwood, commonly pulpwood, mostly in the form of fuelwood)	2.3	NA	101,333	2.0	NA	81,401
Lands Not Suitable for Timber Production <sup>1</sup> <b>B1.</b> Sawtimber (9 inches+)	21.1	99.4	315,972	23.2	114.5	342,510
Lands Not Suitable for Timber Production <sup>1</sup> <b>B2.</b> Other Products (5–9 inches)	4.1	NA	137,744	3.7	NA	112,986
<b>C. Projected Timber Sale Quantity (PTSQ) (A1+A2+B1+B2)</b>	40.1	158.5	743,689	41.9	177.8	729,482
Other Estimated Wood Products <sup>2</sup> <b>D1.</b> Non-industrial softwood fuelwood (5 inches+)	5.9	NA	1.6	6.5	NA	1.8
Other Estimated Wood Products <sup>2</sup> <b>D2.</b> Hardwood fuelwood (5 inches+)	1.1	NA	0.4	1.0	NA	0.4
Other Estimated Wood Products <sup>2</sup> <b>D3.</b> Aspen (5 inches+)	0.7	NA	0.2	0.6	NA	0.1
<b>E. Projected Wood Sale Quantity (PWSQ) (C+D1+D2+D3)</b>	47.8	NA	743,692	50.0	NA	729,484

1. Volumes other than salvage or sanitation that meet timber product utilization standards.

2. Fuelwood, biomass, and other volumes that do not meet timber product utilization standards.

MMCF = million cubic feet; MMBF = million board feet; NA = not applicable.

## Recreation (REC)

### Recreation Objectives (FW-REC-O)

#### Objective 7

**Alternative 2:** [No such objective]

**Alternative 3:** Convert 25 percent of existing campsites in 5 developed campgrounds from single use sites (i.e., one family) to multiple use sites (e.g., group, RV, and horse riders) during the 10 years following plan approval.

**Alternative 4:** [No such objective]

**Alternative 5:** [No such objective]

### Objective 8

**Alternative 2:** [No such objective]

**Alternative 3:** Redesign existing trails or construct new trails to create 1 trail system for mountain bikes, during the 5 years following plan approval.

**Alternative 4:** [No such objective]

**Alternative 5:** [No such objective]

### *Transportation and Forest Access (TFA)*

### **Transportation and Forest Access Objectives (FW-TFA-O)**

#### Objective 1

**Alternative 2:** Obliterate or naturalize at least 20 miles of unneeded roads within the 10-year period following plan approval.

**Alternative 3:** [Objective is removed]

**Alternative 4:** Obliterate or naturalize at least 40 miles of unneeded roads within the 10-year period following plan approval.

**Alternative 5:** [Same as alternative 2]

#### Objective 2

**Alternative 2:** Grade surfaces and clean culverts and ditches on at least 500 miles of open National Forest System roads annually.

**Alternative 3:** Grade surfaces and clean culverts and ditches on at least 650 miles of open National Forest System roads annually.

**Alternative 4:** [Same as alternative 2]

**Alternative 5:** [Same as alternative 2]

#### Objective 3

**Alternative 2:** Maintain at least 100–300 miles of trails (including motorized) annually.

**Alternative 3:** Maintain at least 200–400 miles of trails (including motorized) annually.

**Alternative 4:** [Same as alternative 2]

**Alternative 5:** [Same as alternative 2]

## Transportation and Forest Access Management Standards (FW-TFA-S)

### Standard 3

**Alternative 2:** Temporary roads that support ecosystem restoration activities, fuels management, or other short-term projects shall be decommissioned upon project completion, to protect watershed condition, minimize wildlife disturbance, and prevent illegal motorized use.

**Alternative 3:** [Guideline modified and moved to FW-TFA-G in this alternative]

**Alternative 4:** Temporary roads that support ecosystem restoration activities, fuels management, or other short-term projects shall be obliterated or naturalized upon project completion, to protect watershed condition, minimize wildlife disturbance, and prevent illegal motorized use.

**Alternative 5:** [Same as alternative 2]

### Standard 4

**Alternative 2:** [Standard moved to FW-TFA-G in this alternative]

**Alternative 3:** [Standard moved to FW-TFA-G in this alternative]

**Alternative 4:** Construction of new system roads shall be accompanied by a mitigating action (e.g., decommissioning) of other unneeded roads and trails to offset any resource damage resulting from construction.

**Alternative 5:** [Standard moved to FW-TFA-G in this alternative]

## Transportation and Forest Access Management Guidelines (FW-TFA-G)

### Guideline 2

**Alternative 2:** Construction of new system roads should be accompanied by a mitigating action (e.g., decommissioning) of other unneeded roads and trails to offset any resource damage resulting from their construction.

**Alternative 3:** [Removed from this alternative]

**Alternative 4:** [Guideline moved to FW-TFA-S in this alternative]

**Alternative 5:** [Same as alternative 2]

### Guideline 11

**Alternative 2:** [Guideline modified and moved to FW-TFA-S in this alternative]

**Alternative 3:** Temporary roads that support ecosystem restoration activities, fuels management, or other short-term projects should be considered for conversion to system roads or motorized trails.

**Alternative 4:** [Guideline modified and moved to FW-TFA-S in this alternative]

**Alternative 5:** [Guideline modified and moved to FW-TFA-S in this alternative]

## *Scenery (SCEN)*

### **Scenery Desired Conditions (FW-SCEN-DC)**

#### **Desired Condition 5**

**Alternative 2:** The forest appears predominantly natural and human activities do not dominate the landscape.

**Alternative 3:** Areas of the forest appear natural where human activities do not dominate the landscape.

**Alternative 4:** [Same as alternative 2]

**Alternative 5:** [Same as alternative 2]

## *Wildland Fire Management (FIRE)*

### **Wildland Fire Management Guidelines (FW-FIRE-G)**

#### **Guideline 1**

**Alternative 2:** To restore fire on the landscape, naturally ignited fires (including those occurring in designated areas) should be managed to meet multiple resource objectives when fire weather conditions facilitate progress toward desired conditions (per Desired Conditions of various resources throughout the plan).

**Alternative 3:** To restore fire on the landscape, naturally ignited fires (including those occurring in designated areas) should be managed to meet multiple resource objectives when fire weather conditions facilitate progress toward desired conditions (per Desired Conditions of various resources throughout the plan), but should be suppressed in suitable timber or when they would impact trail access.

**Alternative 4:** [Same as alternative 2]

**Alternative 5:** [Same as alternative 2]

## **Plan Components for Designated Areas and Management Areas**

Designated areas are mostly designated by statute, but some categories may be established administratively through the Federal executive branch. Plan components for a designated area may differ from forest-wide guidance and must provide for appropriate management of the designated area, based on the applicable authorities and the specific purposes for which the area was designated or recommended for designation.

Management areas are used to describe how plan components apply to specific parcels of National Forest System land. A management area represents a management emphasis for an area or several similar areas on the landscape.

Forest-wide plan components are applied, unless there is management direction for a designated area or management area. Where designated areas, management areas, and forest-wide plan components overlap, designated area plan direction supersedes management area direction, which supersedes forest-wide direction. Where overlapping direction is not incompatible all direction applies. For example, where designated wilderness overlaps a management area the wilderness area direction must be followed even if

it contradicts the management area direction. Where a developed resort management area overlaps forest-wide vegetation community direction the developed resort direction applies even if it contradicts the forest-wide direction. Where management areas overlap, plan direction for both must be followed.

Plan components for designated and management areas may differ from forest-wide guidance by:

1. Constraining an activity where forest-wide direction does not;
2. Constraining an activity to a greater degree than forest-wide direction; or
3. Providing for an exception to forest-wide direction, when forest-wide direction is in conflict with the management emphasis of the management area. For example, a forest-wide desired condition in Spruce-Fir Forest describes openings to be maintained by natural processes, while a desired condition for the Developed Winter and Summer Resort Management Area describes resort activities playing a dominant role in maintaining created grassy openings intermixed with forested areas.

## Management Areas

### *Recommended Wilderness Management Area (RWMA)*

**Alternative 2:** 9,189 acres of recommended wilderness.

**Alternative 3:** [Does not include any Recommended Wilderness Management Areas and so does not have any components for recommended wilderness]

**Alternative 4:** 45,473 acres of recommended wilderness

**Alternative 5:** 67,996 acres of recommended wilderness

### *Developed Winter and Summer Resort Management Area (DEVRES)*

**Alternative 2:** 2,588 acres

**Alternative 3:** 3,509 acres

**Alternative 4:** [Same as alternative 2]

**Alternative 5:** [Same as alternative 2]

## Developed Winter and Summer Resort Management Area Standards (FW-DEVRES-S)

### Standard 1

**Alternative 2:** [No such standard]

**Alternative 3:** A road shall not be constructed or reconstructed in an inventoried roadless area, unless the responsible official determines that a road is needed according to the circumstances allowed in the 2001 Roadless Rule (66 FR 3244). Review authorities shall be followed.

**Alternative 4:** [No such standard]

**Alternative 5:** [No such standard]

**Standard 2**

**Alternative 2:** [No such standard]

**Alternative 3:** Timber shall not be cut, sold, or removed in inventoried roadless areas, unless the responsible official determines that activities meet the circumstances provided in the Roadless Rule (66 FR 3244). Review authorities shall be followed.

**Alternative 4:** [No such standard]

**Alternative 5:** [No such standard]

**Developed Winter and Summer Resort Management Area Guidelines (FW-DEVRES-G)**

**Guideline 4**

**Alternative 2:** [No such guideline]

**Alternative 3:** Inventoried roadless areas should be managed for Primitive, Semi-primitive Non-motorized, and Semi-primitive Motorized recreation settings, to preserve their roadless area characteristics.

**Alternative 4:** [No such guideline]

**Alternative 5:** [No such guideline]

**Guideline 5**

**Alternative 2:** [No such guideline]

**Alternative 3:** In inventoried roadless areas management activities should be consistent with the scenic integrity objective of High, to preserve their roadless area characteristics.

**Alternative 4:** [No such guideline]

**Alternative 5:** [No such guideline]

*Grassland Maintenance Management Area (GMMA)*

**Alternative 2:** 61,824 acres

**Alternative 3:** [Same as alternative 2]

**Alternative 4:** [Does not include any Grassland Maintenance Management Area]

**Alternative 5:** [Same as alternative 2]

*Valle Vidal Management Area (VVMA)*

**Alternative 2:** 100,000 acres

**Alternative 3:** [Does not include the Valle Vidal Management Area]

**Alternative 4:** [Same as alternative 2]

**Alternative 5:** [Same as alternative 2]

**Valle Vidal Management Area Standards (MA-VVMA-S)**

**Standard 21**

**Alternative 2:** [No such standard]

**Alternative 3:** [Valle Vidal Management Area not included in this alternative]

**Alternative 4:** Timber harvest for the purpose of timber production is prohibited.

**Alternative 5:** [No such standard]

**Standard 22**

**Alternative 2:** [No such standard]

**Alternative 3:** [Valle Vidal Management Area not included in this alternative]

**Alternative 4:** Military ground operations are prohibited.

**Alternative 5:** [No such standard]

**Standard 23**

**Alternative 2:** [No such standard]

**Alternative 3:** [Valle Vidal Management Area not included in this alternative]

**Alternative 4:** Construction of motorized trails is prohibited.

**Alternative 5:** [No such standard]

*San Antonio Management Area (SAMA)*

**Alternative 2:** 117,035 acres

**Alternative 3:** [Does not include the San Antonio Management Area]

**Alternative 4:** 148,000 acres

**Alternative 5:** [Same as alternative 2]

**San Antonio Management Area Objectives (MA-SAMA-O)**

**Objective 1**

**Alternative 2:** [No such objective]

**Alternative 3:** [San Antonio Management Area not included in this alternative]

**Alternative 4:** Improve wildlife or aquatic habitat connectivity by removing unneeded structures (e.g., fences, roads, cattleguards, and culverts) or completing improvement projects (e.g., removing barriers and connecting fragmented habitat) in at least 10 to 20 locations, during each 10-year period following plan approval.

**Alternative 5:** [No such objective]

## Objective 2

**Alternative 2:** [No such objective]

**Alternative 3:** [San Antonio Management Area not included in this alternative]

**Alternative 4:** Complete at least five projects to improve habitat connectivity for aquatic and riparian species (e.g., remove barriers, restore dewatered stream segments, connect fragmented habitat, wildlife passage friendly fences, etc.), during the 10 years following plan approval.

**Alternative 5:** [No such objective]

## San Antonio Management Area Standards (MA-SAMA-S)

### Standard 8

**Alternative 2:** [No such standard]

**Alternative 3:** [San Antonio Management Area not included in this alternative]

**Alternative 4:** Except for travel on open public roads, all public entry (including hiking) is prohibited on the Tres Piedras Ranger District portion of this management area from January 1 to March 30 and May 1 to June 30, to provide security for elk winter range and calving.

**Alternative 5:** [No such standard]

### Standard 9

**Alternative 2:** [No such standard]

**Alternative 3:** [San Antonio Management Area not included in this alternative]

**Alternative 4:** Except for travel on open public roads and Cebolla Mesa Trail, all public entry (including hiking) is prohibited on the Questa Ranger District portion of this management area from January 1 to March 30, to provide security for elk winter range.

**Alternative 5:** [No such standard]

### Standard 10

**Alternative 2:** [No such standard]

**Alternative 3:** [San Antonio Management Area not included in this alternative]

**Alternative 4:** Timber harvest for the purpose of timber production is prohibited.

**Alternative 5:** [No such standard]

### Standard 11

**Alternative 2:** [No such standard]

**Alternative 3:** [San Antonio Management Area not included in this alternative]

**Alternative 4:** Military ground operations are prohibited.

**Alternative 5:** [No such standard]

## San Antonio Management Area Guidelines (MA-SAMA-G)

### Guideline 2

**Alternative 2:** [No such guideline]

**Alternative 3:** [San Antonio Management Area not included in this alternative]

**Alternative 4:** Vegetation management activities should not impact more than 3 percent of the management area in any one year period.

**Alternative 5:** [No such standard]

### *Off-Highway Vehicle Management Area (OHVMA)*

This area has the unique and specific characteristics required for trials motorcycle riding including rugged terrain, rocks and obstacles, as opposed to trails or roads. Intensive off-highway vehicle use in an undeveloped setting provides a range of challenges and opportunities not found on other parts of the Carson National Forest. This area provides a unique and valuable recreational resource to the trials motorcycle community, and allows for frequent, casual use for practice and skills development without having to rely on infrequent, permitted events.

**Alternative 2:** [Does not include the Off-Highway Vehicle Management Area]

**Alternative 3:** 2,978 acres

**Alternative 4:** [Does not include the Off-Highway Vehicle Management Area]

**Alternative 5:** [Does not include the Off-Highway Vehicle Management Area]

## Off-Highway Vehicle Management Area Desired Conditions (MA-OHVMA-DC)

### Desired Condition 1

**Alternative 2:** [Off-Highway Vehicle Management Area not included in this alternative]

**Alternative 3:** Challenging terrain provides opportunities for trials motorcycles and off-highway vehicle rock crawling.

**Alternative 4:** [Off-Highway Vehicle Management Area not included in this alternative]

**Alternative 5:** [Off-Highway Vehicle Management Area not included in this alternative]

### Desired Condition 2

**Alternative 2:** [Off-Highway Vehicle Management Area not included in this alternative]

**Alternative 3:** Trail and road system development is limited to preserve rugged terrain and obstacles.

**Alternative 4:** [Off-Highway Vehicle Management Area not included in this alternative]

**Alternative 5:** [Off-Highway Vehicle Management Area not included in this alternative]

## Off-Highway Vehicle Management Area Standards (MA-OHVMA-S)

### Standard 1

**Alternative 2:** [Off-Highway Vehicle Management Area not included in this alternative]

**Alternative 3:** No new structural improvements are allowed except for management area boundary markers, a parking area, an information kiosk, and a restroom.

**Alternative 4:** [Off-Highway Vehicle Management Area not included in this alternative]

**Alternative 5:** [Off-Highway Vehicle Management Area not included in this alternative]

## Standard 2

**Alternative 2:** [Off-Highway Vehicle Management Area not included in this alternative]

**Alternative 3:** Any trail construction must be for motorized use. Multi-purpose trails shall not be constructed.

**Alternative 4:** [Off-Highway Vehicle Management Area not included in this alternative]

**Alternative 5:** [Off-Highway Vehicle Management Area not included in this alternative]

## *Wetland Jewels Management Area (WJMA)*

The Wetland Jewels Management Area is made up of 10 areas containing a single wetland or complex of wetlands that provide important ecological functions to the terrestrial and aquatic landscape. These wetlands and wetland complexes provide habitat for wildlife, contribute clean water to downstream communities, mitigate downstream flooding, help maintain downstream flows, and sequester carbon. The protection of ecological function is focused in these wetland areas on the forest, by making them a priority for protection and restoration. Emphasis on management activities in Wetland Jewels Management Area to maintain and restore riparian function would compensate for degraded wetland conditions in the broader landscape. Actions that degrade the structure, function, and composition of Wetland Jewels are constrained or prohibited.

**Alternative 2:** [Does not include the Wetland Jewels Management Area]

**Alternative 3:** [Does not include the Wetland Jewels Management Area]

**Alternative 4:** 79,630 acres

**Alternative 5:** [Does not include the Wetland Jewels Management Area]

## **Wetland Jewels Management Area Desired Conditions (MA-WJMA-DC)**

### **Desired Condition 1**

**Alternative 2:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 3:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 4:** Wetlands provide aquatic invertebrate habitat, fish habitat, waterfowl and water bird habitat, groundwater recharge capacity, streamflow maintenance capacity, surface water detention capacity, and carbon sequestration capacity, consistent with the wetland's potential.

**Alternative 5:** [Wetland Jewels Management Area not included in this alternative]

### **Desired Condition 2**

**Alternative 2:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 3:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 4:** In cases where a Wetland Jewels Management Area is smaller than a watershed, the Wetland Jewels Management Area portion of the watershed is functioning properly<sup>2</sup> in that it exhibits high geomorphic, hydrologic, and biotic integrity relative to its potential condition.

**Alternative 5:** [Wetland Jewels Management Area not included in this alternative]

## Wetland Jewels Management Area Objectives (MA-WJMA-O)

### Objective 1

**Alternative 2:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 3:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 4:** Restore structure and function of at least 200–300 acres of nonfunctioning and functioning-at-risk riparian areas annually. Over ten years, distribute these restoration activities among at least six of the Wetland Jewels Management Areas.

**Alternative 5:** [Wetland Jewels Management Area not included in this alternative]

### Objective 2

**Alternative 2:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 3:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 4:** Annually install 35 to 100 erosion control treatments, to stabilize headcuts, road drainage impacts, and other erosional features.

**Alternative 5:** [Wetland Jewels Management Area not included in this alternative]

### Objective 3

**Alternative 2:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 3:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 4:** Within the 5-year period following plan approval, develop a wetland action plan for all 10 Wetland Jewels Management Areas, to address wetland stressors (e.g., recreation, wildlife and livestock grazing, road drainage) by identifying, prioritizing, and scheduling implementation of mitigation and restoration actions.

**Alternative 5:** [Wetland Jewels Management Area not included in this alternative]

### Objective 4

**Alternative 2:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 3:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 4:** Obliterate or naturalize up to 40 miles of non-system roads (e.g., unauthorized, decommissioned), within the 10-year period following plan approval.<sup>3</sup>

<sup>2</sup> According to the Watershed Condition Framework or similar current protocol.

<sup>3</sup> If all needed obliteration and naturalization has been accomplished in the Wetland Jewels Management Area, this objective may be met through work in other areas of the forest.

**Alternative 5:** [Wetland Jewels Management Area not included in this alternative]

### **Wetland Jewels Management Area Standards (MA-WJMA-S)**

#### **Standard 1**

**Alternative 2:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 3:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 4:** No new permanent roads or motorized trails shall be constructed.

**Alternative 5:** [Wetland Jewels Management Area not included in this alternative]

#### **Standard 2**

**Alternative 2:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 3:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 4:** No new communication or electronic equipment, pipelines, powerlines, fiber optic lines, or associated infrastructure shall be constructed.

**Alternative 5:** [Wetland Jewels Management Area not included in this alternative]

#### **Standard 3**

**Alternative 2:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 3:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 4:** Outstanding (existing) mineral rights shall be recognized as authorized by the United States mining laws (30 U.S.C. 21-54). Any entry to access existing mineral rights will be conducted in an environmentally sound way through appropriate administration of mineral laws and regulations so as to minimize adverse environmental effects on National Forest System resources. Site-specific analysis shall occur to evaluate potential effects and develop appropriate mitigation measures. Operating plans and bonds shall be used if needed, to ensure protection and restoration of surface resources.

**Alternative 5:** [Wetland Jewels Management Area not included in this alternative]

#### **Standard 4**

**Alternative 2:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 3:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 4:** Military ground operations are prohibited.

**Alternative 5:** [Wetland Jewels Management Area not included in this alternative]

### **Wetland Jewels Management Area Guidelines (MA-WJMA-G)**

#### **Guideline 1**

**Alternative 2:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 3:** [Wetland Jewels Management Area not included in this alternative]

**Alternative 4:** Consistent with wetland potential, wetland function should be maintained or improved to provide continued aquatic invertebrate habitat, fish habitat, waterfowl and water bird habitat, groundwater recharge capacity, streamflow maintenance capacity, surface water detention capacity, and carbon sequestration capacity.

**Alternative 5:** [Wetland Jewels Management Area not included in this alternative]

#### *Rio Grande Cutthroat Trout Management Area (RGCTMA)*

The Rio Grande Cutthroat Trout Management Area is made up of three high value areas for the Rio Grande cutthroat trout: (1) north of Cruces Basin; (2) in the Comanche Creek Basin; and (3) the Rio Grande del Rancho and nearby streams. Management for the recovery of this species is a high priority in the Rio Grande Cutthroat Trout Management Area.

**Alternative 2:** [Does not include the Rio Grande Cutthroat Trout Management Area]

**Alternative 3:** [Does not include the Rio Grande Cutthroat Trout Management Area]

**Alternative 4:** 145,316 acres

**Alternative 5:** [Does not include the Rio Grande Cutthroat Management Area]

#### **Rio Grande Cutthroat Trout Management Area Desired Conditions (MA-RGCTMA-DC)**

##### **Desired Condition 1**

**Alternative 2:** [Rio Grande Cutthroat Trout Management Area not included in this alternative]

**Alternative 3:** [Rio Grande Cutthroat Trout Management Area not included in this alternative]

**Alternative 4:** Ecological conditions are capable of supporting self-sustaining native aquatic species populations.

**Alternative 5:** [Rio Grande Cutthroat Trout Management Area not included in this alternative]

#### **Rio Grande Cutthroat Trout Management Area Objectives (MA-RGCTMA-O)**

##### **Objective 1**

**Alternative 2:** [Rio Grande Cutthroat Trout Management Area not included in this alternative]

**Alternative 3:** [Rio Grande Cutthroat Trout Management Area not included in this alternative]

**Alternative 4:** Reduce nonnative fish within native fish populations in 4 to 6 stream reaches, during each 10-year period following plan approval.

**Alternative 5:** [Rio Grande Cutthroat Trout Management Area not included in this alternative]

## **Forest Plan Maps (Plan Appendix A)**

There are recommended wilderness management areas in alternatives 2, 4, and 5, as shown on the following maps. Alternatives 1 and 3 do not include any recommended wilderness and are not shown.

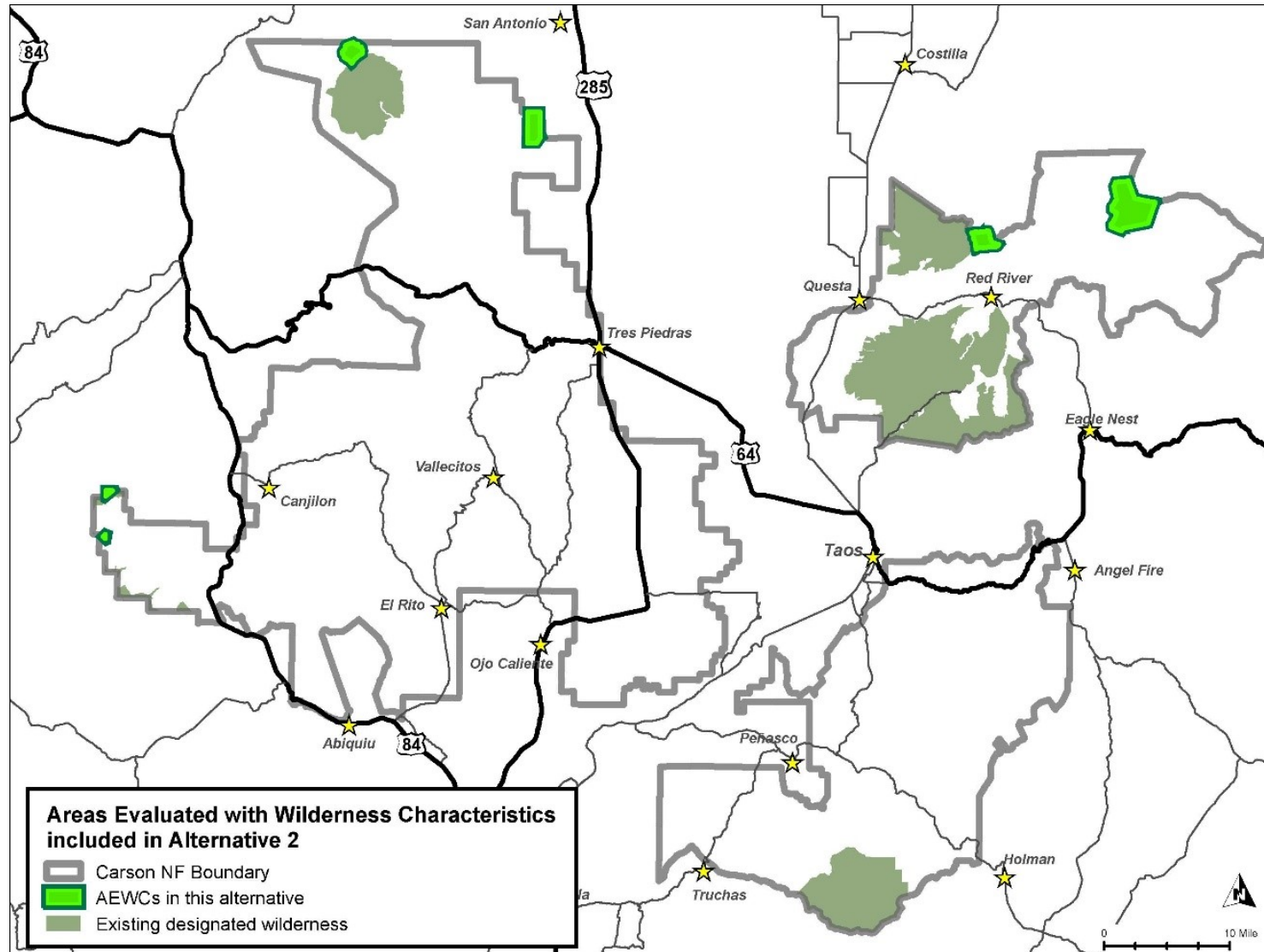
Plan components for a designated area may differ from forest-wide guidance and must provide for appropriate management of the designated area, based on the applicable authorities and the specific purposes for which the area was designated or recommended for designation.

Management areas are used to describe how plan components apply to specific parcels of National Forest System land. A management area represents a management emphasis for an area or several similar areas on the landscape.

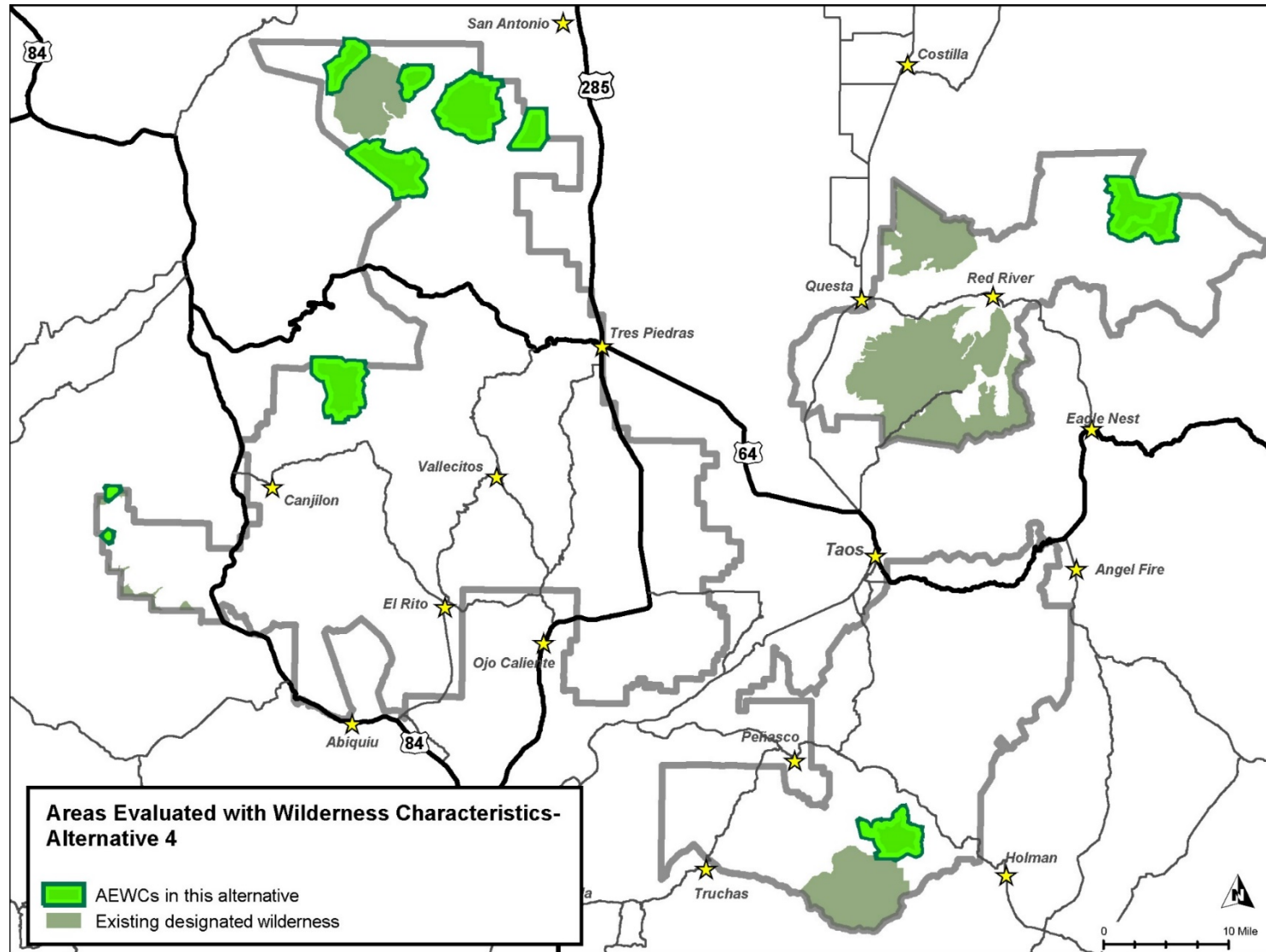
Forest-wide plan components are applied, unless there is management direction for a designated area or management area. Plan components for designated and management areas may differ from forest-wide guidance by:

1. Constraining an activity where forest-wide direction does not;
2. Constraining an activity to a greater degree than forest-wide direction; or
3. Providing for an exception to forest-wide direction, when forest-wide direction is in conflict with the management emphasis of the management area. For example, a forest-wide desired condition in Spruce-Fir Forest describes openings to be maintained by natural processes, while a desired condition for the Developed Winter and Summer Resort Management Area describes resort activities playing a dominant role in maintaining created grassy openings intermixed with forested areas.

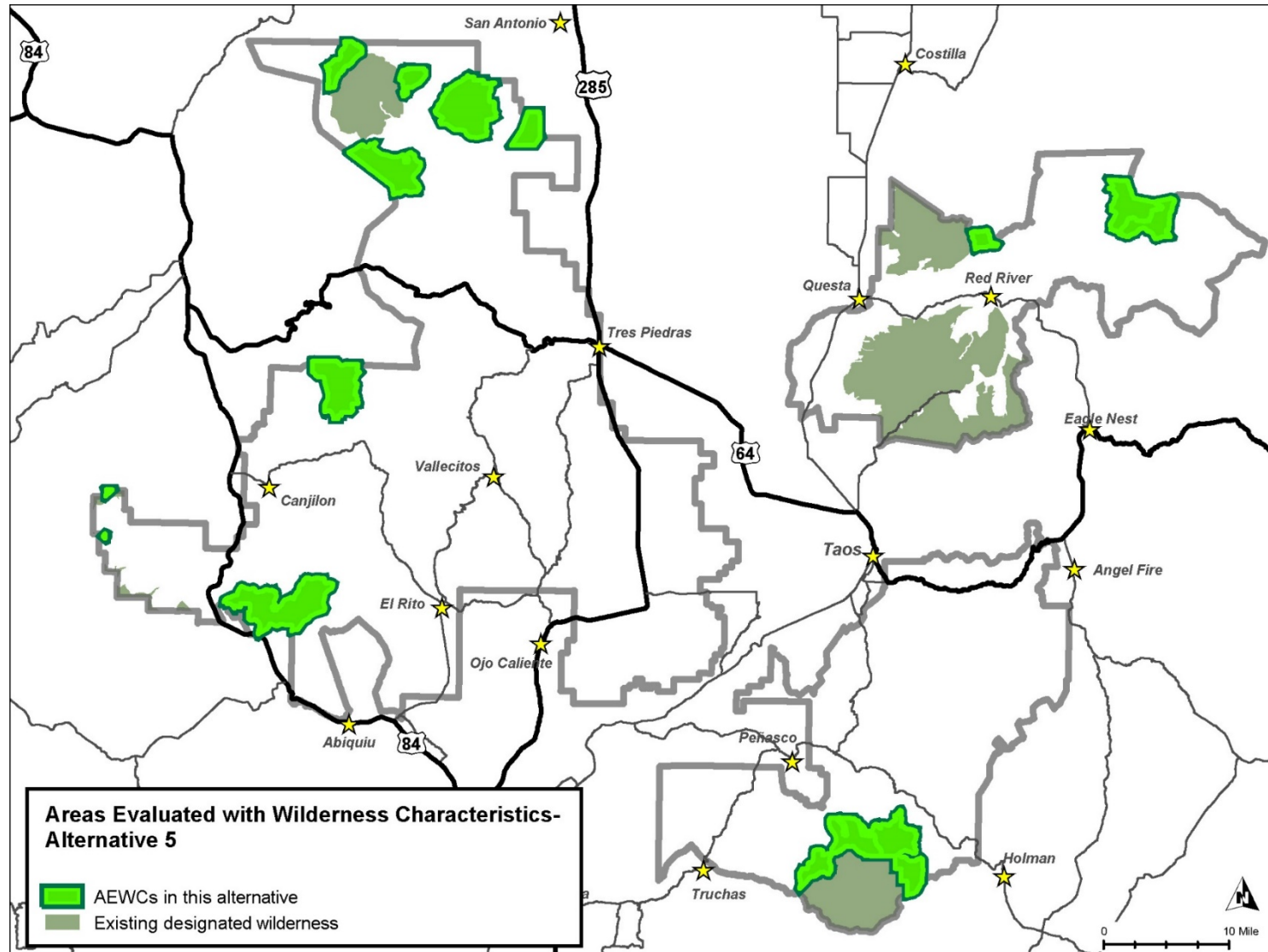
*Recommended Wilderness Management Areas (RWMA) – Alternative 2*



*Recommended Wilderness Management Areas (RWMA) – Alternative 4*



*Recommended Wilderness Management Areas (RWMA) – Alternative 5*



## Additional Management Areas

See the plan appendix A for management areas in alternative 2. Alternative 5 management areas are the same as alternative 2 except for recommended wilderness (see above). The maps which follow are management areas specific to alternatives 3 and 4.

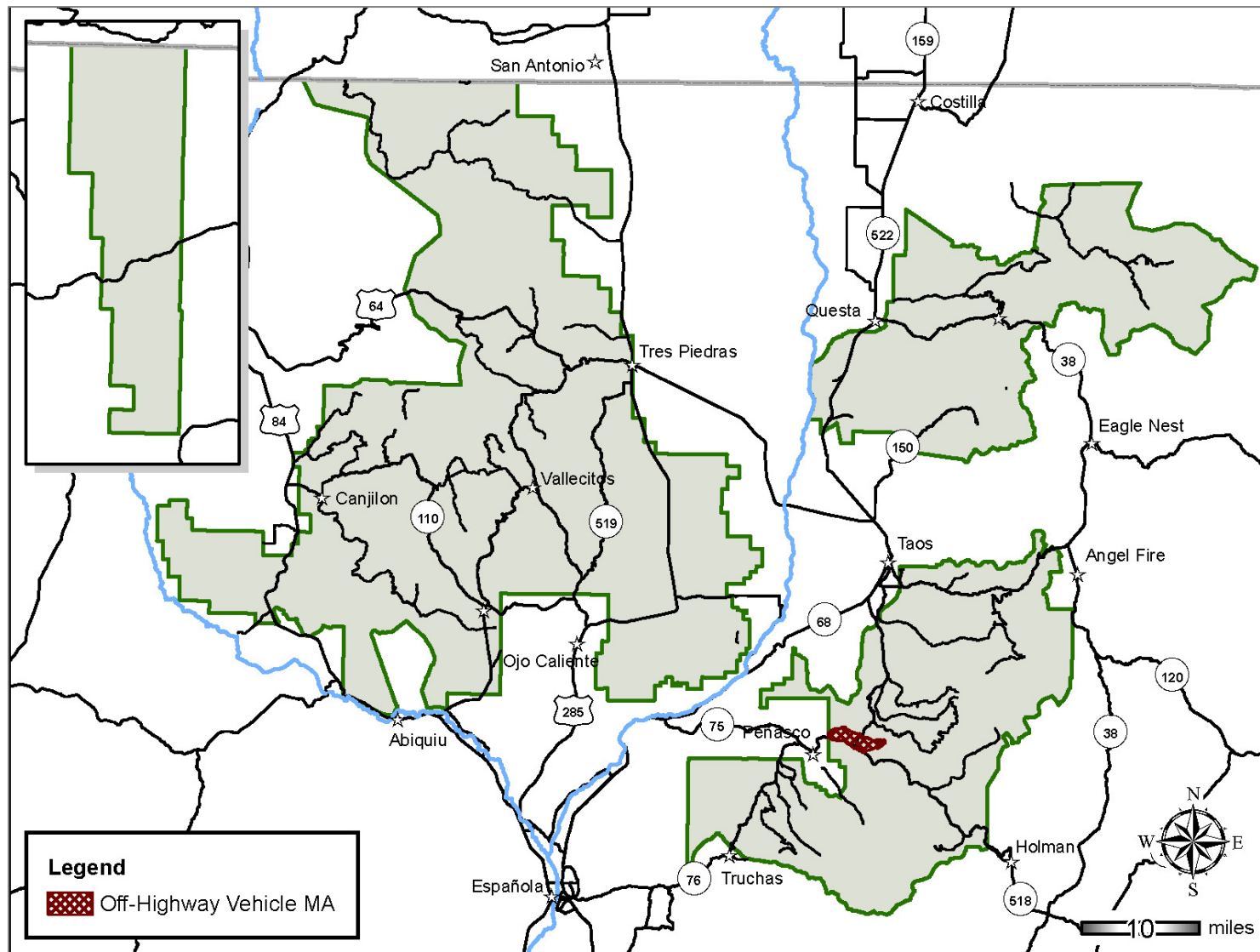
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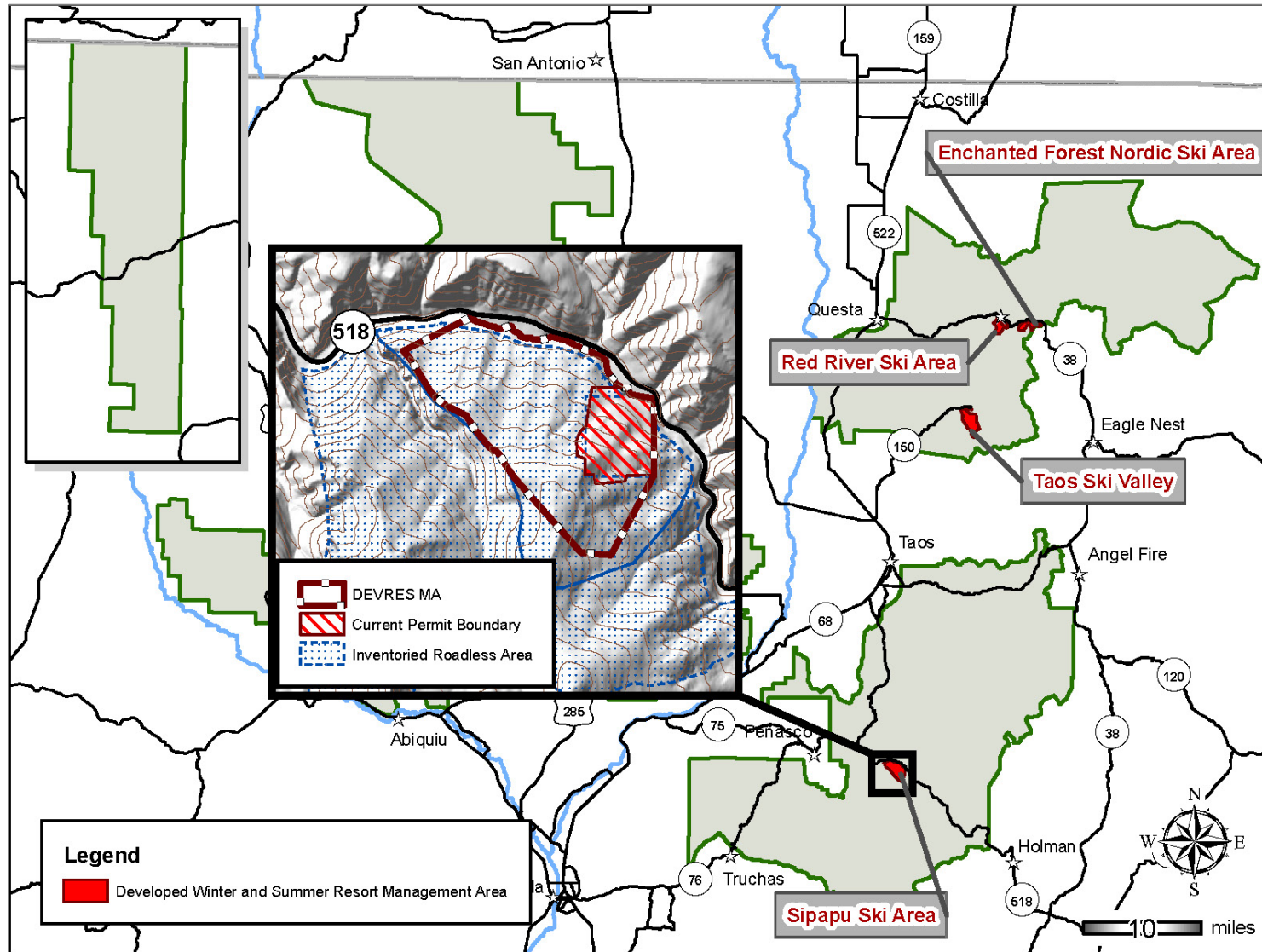
Forest-wide plan components are applied, unless there is management direction for a designated area or management area. Plan components for designated and management areas may differ from forest-wide guidance by:

1. Constraining an activity where forest-wide direction does not;
2. Constraining an activity to a greater degree than forest-wide direction; or
3. Providing for an exception to forest-wide direction, when forest-wide direction is in conflict with the management emphasis of the management area. For example, a forest-wide desired condition in Spruce-Fir Forest describes openings to be maintained by natural processes, while a desired condition for the Developed Winter and Summer Resort Management Area describes resort activities playing a dominant role in maintaining created grassy openings intermixed with forested areas.

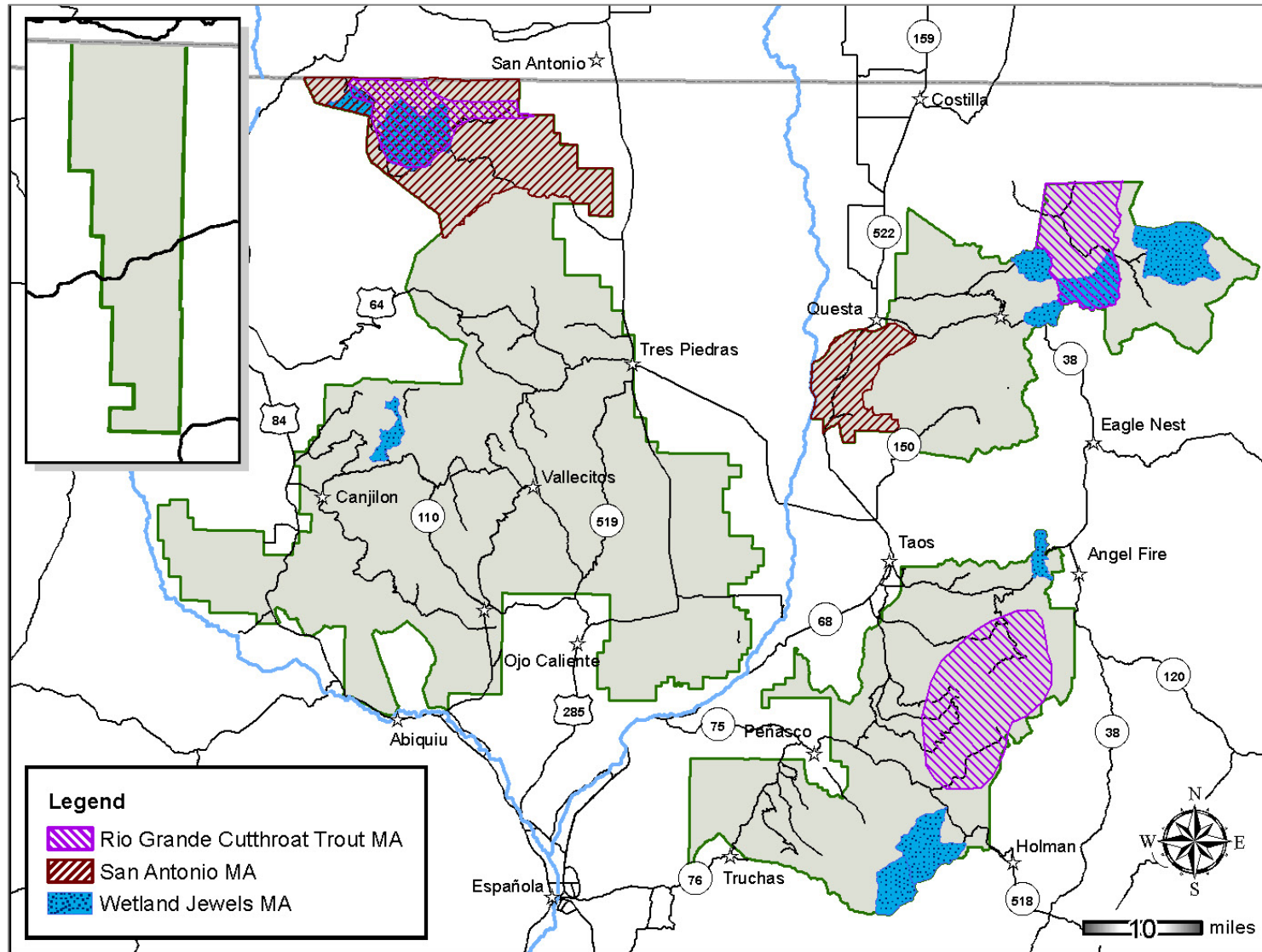
*Off-Highway Vehicle Management Area – Alternative 3*



*Developed Winter and Summer Resort Management Area – Alternative 3*



*Rio Grande Cutthroat Trout, San Antonio, and Wetland Jewels Management Areas – Alternative 4*



# Appendix C – Description of the Vegetation Modeling Process

## Vegetation State and Transition Models

Projecting changes in vegetation structure and composition over time is an important part of landscape-level analyses. Vegetation can change for a variety of reasons such as human activity, fire, insects, pathogens, mammals, weather, or growth and competition. The interaction of these factors can be complex and it can be difficult to project the combined effects over long periods of time (ESSA Technologies Ltd. 2006).

In response to the USDA Forest Services Southwestern Region's need for landscape scale planning tools, broad-scale state and transition models for several ecological response units on the Carson National Forest have been developed based on a comprehensive literature review. Ecological response units have been defined for most vegetation communities on the Carson National Forest. Published scientific information was used to define vegetation model states, identify parameter values for these models, and run quantitative scenario analysis using Vegetation Dynamics Development Tool software (ESSA Technologies Ltd. 2006) in order to determine relative proportions of model states on the landscape. Models were originally developed by LANDFIRE, The Nature Conservancy, and the Integrated Landscape Assessment Project and have been further refined by the Forest Service Southwestern Region, with input from forest specialists. Most state and transition destinations and probabilities for the base models are derived from Forest Vegetation Simulator modeling (Dixon 2002). Burn severity information was compiled from monitoring trends in burn severity records (Wildland Fire Leadership Council 2014). Other inputs came directly from forest records of management actions, insect and disease surveys, and wildfire data from the past 15 to 30 years (USDA Forest Service 2014d). The alpine and tundra, bristlecone pine, and riparian ecological response units have either too little acreage on the Carson National Forest or stand structure has not been adequately mapped; therefore, they are not appropriate for Vegetation Dynamics Development Tool modeling.

Vegetation Dynamics Development Tool software is a non-spatial model that allows the user to model vegetation change over time as a series of vegetation states that differ in size class, canopy cover, dominance type, and storiedness, and movement of vegetation among states (transitions) (ESSA Technologies Ltd. 2006). Various disturbance agents affecting the transitions are incorporated (e.g., surface fire, stand replacing fire, grazing, insect outbreaks). By varying the types and rates of disturbance in the model, the effects on vegetation of different disturbance regimes, such as current and historic fire regimes, or different management treatments, such as fire suppression, prescribed burning, and mechanical fuels treatments, can be tested. These models summarize and synthesize the current state of scientific knowledge for vegetation dynamics. Additionally they provide forest planners and managers with powerful tools for understanding, investigating, and demonstrating the effects of alternative scenarios for the management of vegetation on the Carson National Forest.

State and transition models for each vegetation community were calibrated to reflect the anticipated management under each alternative. Initial seral state proportions were assigned according to actual measurements of current conditions on the Carson National Forest based on midscale vegetation mapping (Mellin et al. 2008). Existing vegetation was assigned to an ecological response unit and then to the appropriate state class within that ecological response unit according to state class descriptions that were developed by the Forest Service Southwestern Region (USDA Forest Service 2011, 2014, see figure 9).

**Table 9. State class definitions – size class**

Size Class	Code	Value
Seedling and sapling	SS	0-5 inches
Small	S	5-10 inches
Medium	M	10-20 inches
Large	L	20-30 inches
Very Large	V	30 inches

**Table 10. State class definitions – canopy cover**

Canopy Cover	Code	Value
Non-tree	GFB/SHR	Less than 10% tree canopy cover
Aspen	ASPEN	Aspen dominated
Open	O	10-29.9% tree canopy cover
Closed	C	Greater than 30% tree canopy cover

**Table 11. State class definitions – storiedness**

Storiedness	Code	Value
Single storied	S	1 level
Multi-storied	M	2 or more levels

Three management factors affected model parameters under different alternatives. First, the inclusion of grassland maintenance management areas in some alternatives affected the initial seral state proportions and the total acres that were managed toward desired conditions in the piñon-juniper woodland, piñon-juniper sagebrush, and ponderosa pine forest ecological response units. The amount of fire and mechanical treatment each varied by alternative based on the objectives for the mixed conifer with frequent fire and ponderosa pine forest ecological response units and therefore affected the amount of disturbance in those two models under different alternatives. The models are included in the project record.

## Seral State Modeling Results by Ecological Response Unit

### Spruce-Fir Forest

#### *Assumptions*

Management related to prescribed fire and mechanical treatment does not vary among alternatives. Future wildfire and insect and disease frequency and severity are likely to differ from levels in the recent past, though in unpredictable ways. Therefore, they were modeled using recent averages under all alternatives.

Run Settings

General Initial Conditions Options Output

Total Area Represented: 289929

Proportion of Cells:

Class	Proprn
A Early A A.GFB	0.023
B Aspen B.Aspen	0.1524
C SFM-T C.sc	0.0807
D SFM-T D.mcs	0.4124
E SFM-T E.vcs	0.0148
F SFM-T F.vcm	0.0033
G SFM-I G.so	0
H SFM-I H.mos	0
I SFM-M I.vos	0.0028
J SFM-M J.vom	0.0005

New Age Delete Age Total: 0.9998

☐ Randomize initial TSD to a maximum of: 0

Reset Normalize End Values Load... Save As... TSD Ages Sort...

OK Cancel Run

Figure 1. Spruce-fir forest model initial conditions states A through J

Run Settings

General Initial Conditions Options Output

Total Area Represented: 289929

Proportion of Cells:

Class	Proprn
K Early K K.GFB	0.0345
L SFM-In L.sc	0.0424
M SFM-To M.mcs	0.2151
N SFM-To N.vcs	0.0128
O SFM-To O.vcm	0.0016
P SFM-In P.so	0
Q SFM-In Q.mos	0
R SFM-Mi R.vos	0.003
S SFM-Mi S.vom	0.0005
T Aspen T.Relic	0

New Age Delete Age Total: 0.9998

☐ Randomize initial TSD to a maximum of: 0

Reset Normalize End Values Load... Save As... TSD Ages Sort...

OK Cancel Run

Figure 2. Spruce-fir forest model initial conditions states K through T

In figure 3 the upper half of the transition pathway diagram includes portions of the spruce-fir forest ecological response unit that have the potential to support aspen. The lower half includes cold, high elevations that are outside the environmental range for aspen. Initial acres on the Carson were divided among the sub-models based on terrestrial ecological unit definitions.

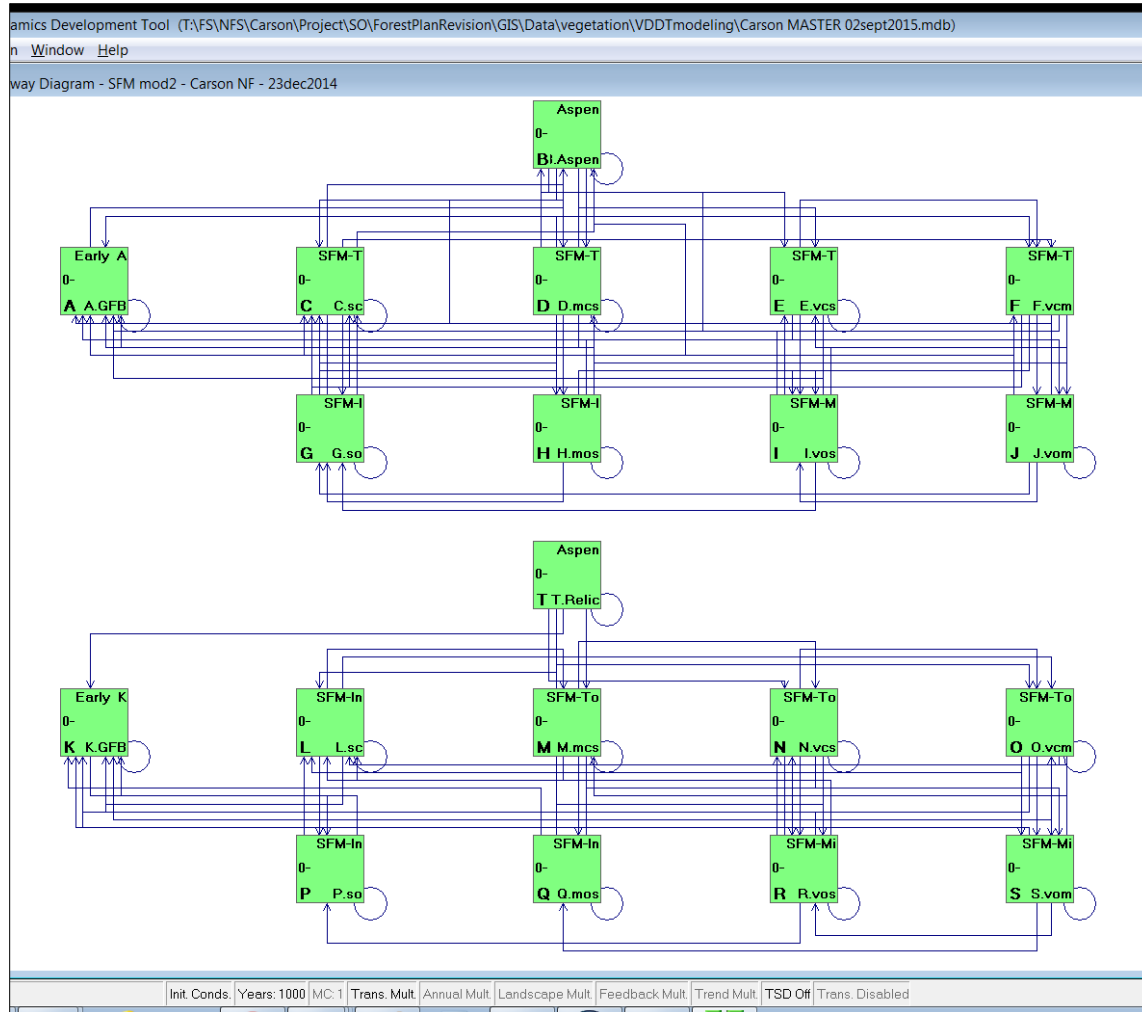


Figure 3. Spruce-fir forest model (transition pathway diagram)

### Model Results

Departure in spruce-fir forest declines under all alternatives as previously logged areas mature and the over-represented medium closed D state transitions to the very large, closed, multi-storied F state (figure 4).

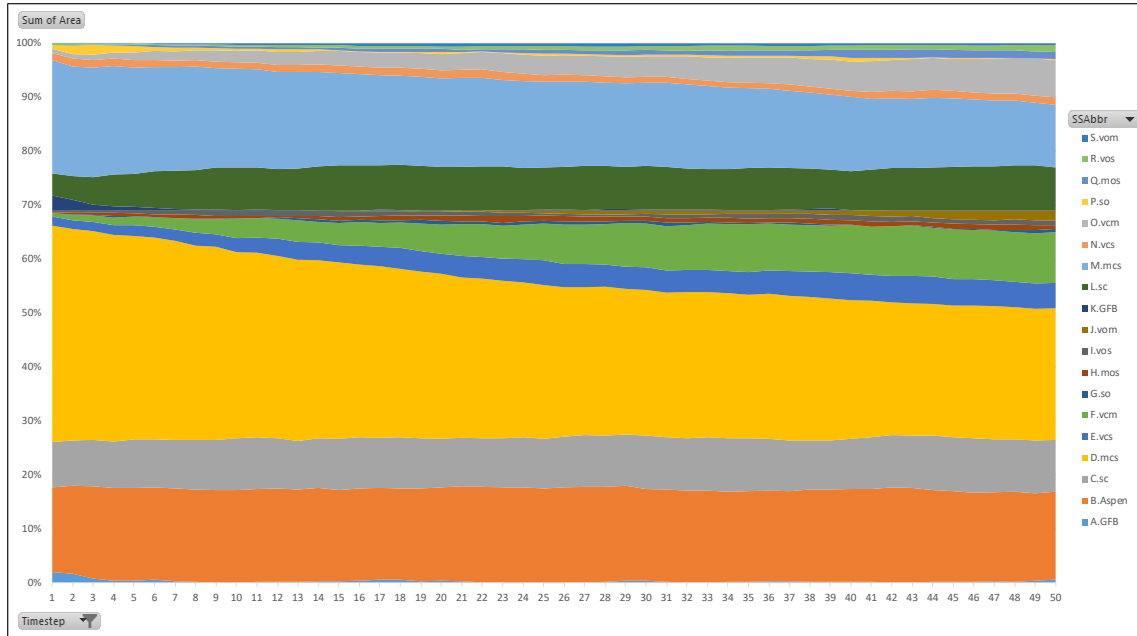


Figure 4. Spruce-fir forest modeled seral state distribution results – all alternatives

## Mixed Conifer with Aspen

### Assumptions

Management related to prescribed fire and mechanical treatment does not vary among alternatives. Future wildfire and insect and disease frequency and severity are likely to differ from levels in the recent past, though in unpredictable ways. Therefore, they were modeled using recent averages under all alternatives.

Class	Propn
A Early A A.GFB	0.0207
B Aspen B.Aspen	0.1685
C MC-T C.sc	0.1028
D MC-T D.mcs	0.4743
E MC-T E.vcs	0.2179
F MC-T F.vcm	0.0134
G MC-I G.so	0.0011
H MC-I H.mos	0
I MC-M I.vos	0.0006
J MC-M J.vom	0.0006

Total: 0.9999

Figure 5. Mixed conifer with aspen model initial conditions states A through J

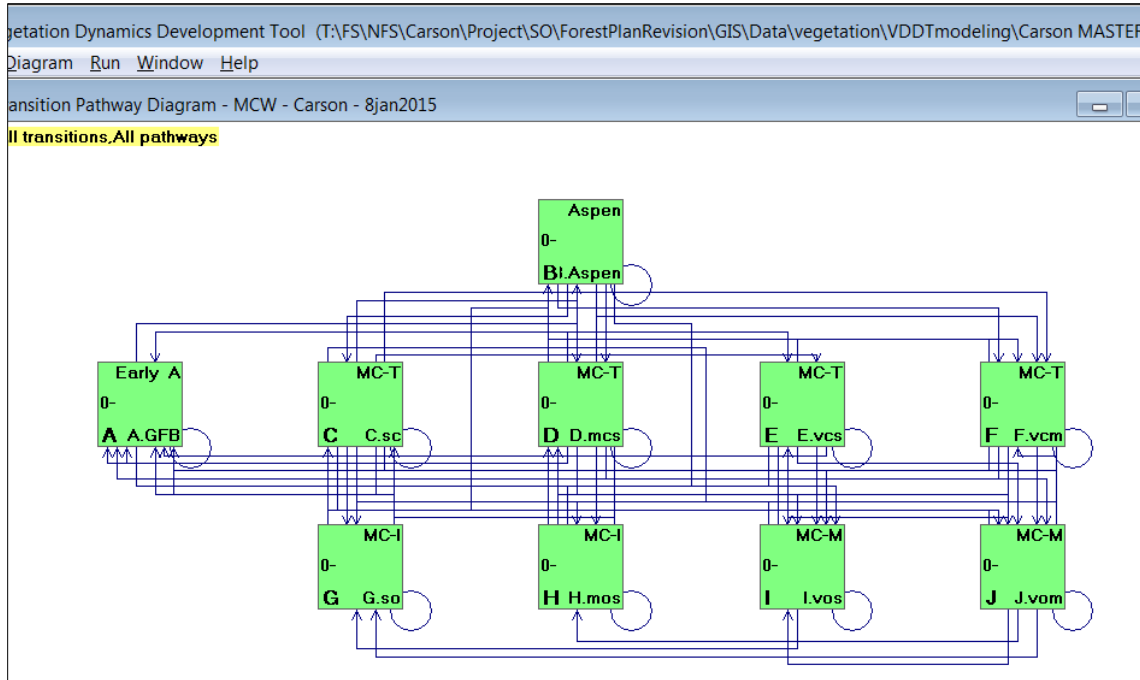


Figure 6. Mixed conifer with aspen model (transition pathway diagram)

### Model Results

Departure in mixed conifer with aspen declines under all alternatives as previously logged areas mature and the over-represented medium closed D state transitions to the very large, closed, multi-storied F state (see figure 7).

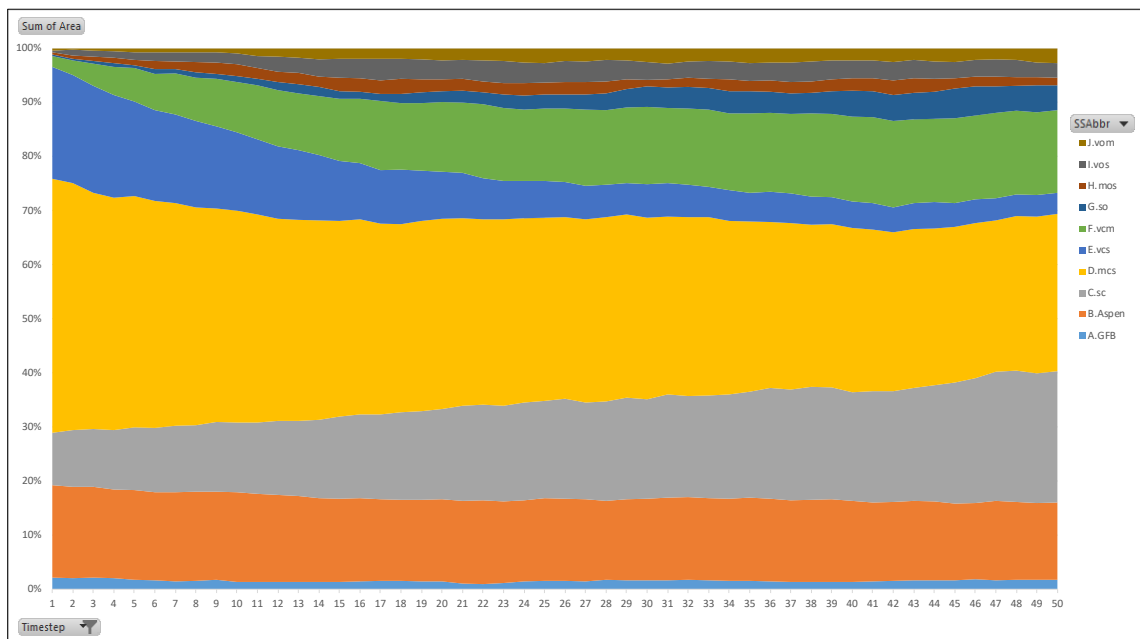


Figure 7. Mixed conifer with aspen modeled seral state distribution results – all alternatives

## Mixed Conifer with Frequent Fire

### Assumptions

Management related to prescribed fire and mechanical treatment varies among alternatives based on objectives. All fire treatment acres (prescribed fire and natural fire with resource objectives) were distributed among existing prescribed fire transitions following existing proportions in low, moderate, and high severity effects (see table 12).

**Table 12. Average annual acres of prescribed fire (including natural fire with resource objectives) in each severity class by alternative.**

Annual Prescribed Fire Transitions	Alternative 1 (acres)	Alternative 2 (acres)	Alternative 3 (acres)	Alternative 4 (acres)	Alternative 5 (acres)
Low (Treatment Type J)	55 (47.5%)	1,434	1,434	1,792	1,434
Moderate (Treatment Type K)	55 (47.5%)	1,434	1,434	1,792	1,434
High (Treatment Type L)	6 (5%)	156	156	195	156

Mechanical treatments varied among alternatives in terms of total amount and type (see table 13). Mechanical treatments in alternative 1 are based on the recent averages of actual accomplished work. For action alternatives, initially mechanically treated acres were distributed among treatment types in the same proportions as in alternative 1. In alternatives 2, 3, and 5 all diameter cap treatments (type D and M) were removed and 2 percent, 8 percent, and 2 percent of the total mechanical treatment acres (respectively) were changed to even aged treatment to allow for insect and disease treatment (moved to type F – shelterwood seed cut to target basal area). Type F –shelterwood provides more total volume per acre, and was therefore judged to be more compatible with the theme of alternative 3. In alternatives 2, 3, and 5, all remaining harvest thinning (thin less than 16 inches diameter cap to target basal area and thin less than 9 inches diameter cap) was changed to type C – thin from below to target basal area; and all remaining fuels treatment acres (type M – thin to 9 inches diameter cap) were changed to type E – group selection with matrix thin to target basal area.

**Table 13. Mechanical treatment acres by alternative and type**

Type Code	Treatment Type	Alt 1 (acres)	Alt 2 (acres)	Alt 3 (acres)	Alt 4 (acres)	Alt5 (acres)
B	Free thin, all sizes to target basal area	0	0	0	0	0
C	Thin-from-below to target basal area	56	124	339	274	124
D	Thin under a 16 inches diameter cap to target basal area	5	0	0	25	0
E	Group selection with matrix thin to target basal area	12	635	1,729	0	635
F	Shelterwood seed cut to target basal area	0	16	180	0	16
G	Clearcut with non-regeneration objective legacy trees	0	0	0	0	0
H	Clearcut/ coppice for hardwood regeneration	0	0	0	0	0
I	Planting	33	33	33	33	33
M	Thin under a 9 inches diameter cap	360	0	0	49	0

Alternative 4 treats the same number of fuels treatment acres as alternative 1 (the recent average), but instead of adding them all to type M those acres were distributed among harvest thin treatments in the proportion of current average acres for the three harvest thin treatments (type M – thin to 9 inches, type D – thin to 16 inches, and type C – thin from below to target basal area).

Figure 8 and figure 9 display the initial conditions used in the model for the mixed conifer with frequent fire vegetation community.

The screenshot shows the 'Run Settings' dialog box with the 'Initial Conditions' tab selected. The 'Total Area Represented' is 182847. The 'Proportion of Cells' table lists states A through J with their respective proportions. The 'Total' is 1.0. The 'Randomize initial TSD' checkbox is checked with a value of 15.

Class	Propn
A MCD A.GFB	0.003
B MCD B.sso	0.0169
C MCD C.smo	0.0493
D MCD D.mos	0.0108
E MCD E.vos	0.0039
F MCD F.ssc	0.0001
G MCD G.smc	0.0566
H MCD H.mcs	0.689
I MCD I.vcs	0.0105
J MCD J.mom	0.0093

Total: 1.0

☒ Randomize initial TSD to a maximum of: 15

Figure 8. Mixed conifer with frequent fire model initial conditions states A through J

The screenshot shows the 'Run Settings' dialog box with the 'Initial Conditions' tab selected. The 'Total Area Represented' is 182847. The 'Proportion of Cells' table lists states F through N with their respective proportions. The 'Total' is 1.0. The 'Randomize initial TSD' checkbox is checked with a value of 15.

Class	Propn
F MCD F.ssc	0.0001
G MCD G.smc	0.0566
H MCD H.mcs	0.689
I MCD I.vcs	0.0105
J MCD J.mom	0.0093
K MCD K.vom	0.0213
L MCD L.mcm	0.1293
M MCD M.vcm	0
N MCD N.unc	0

Total: 1.0

☒ Randomize initial TSD to a maximum of: 15

Figure 9. Mixed conifer with frequent fire model initial conditions states F through N

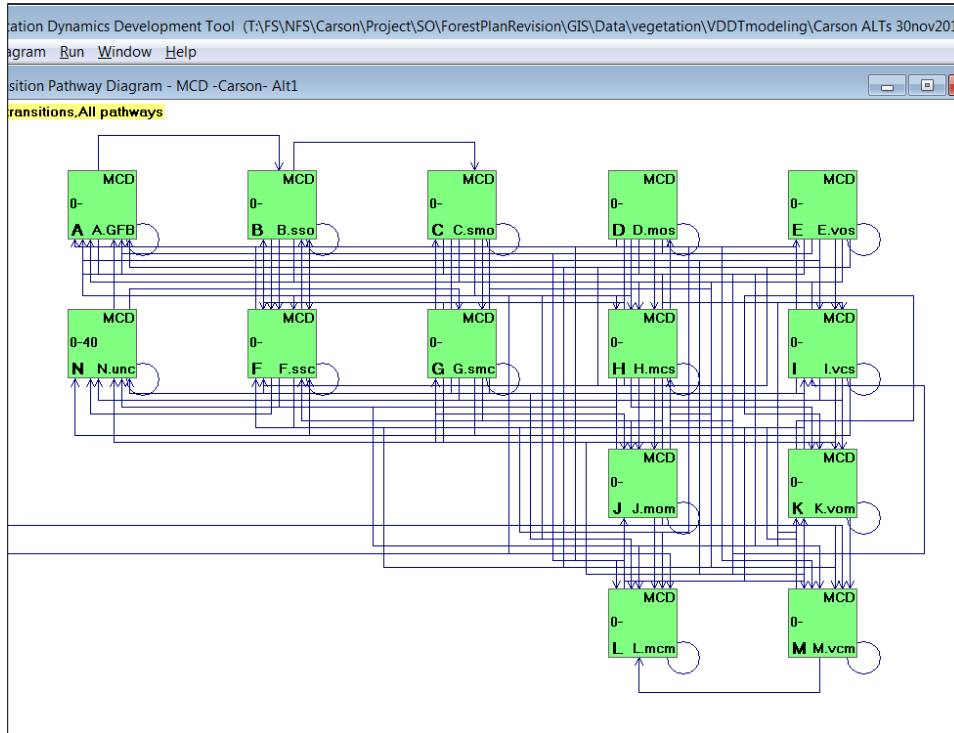


Figure 10. Mixed conifer with frequent fire model (transition pathway diagram)

### Model Results

Under alternative 1, mixed conifer with frequent fire is 54 percent departed by year 15 as seedling/sapling under-represented states increase and medium to large closed canopy over-represented states decrease slightly (figure 11).

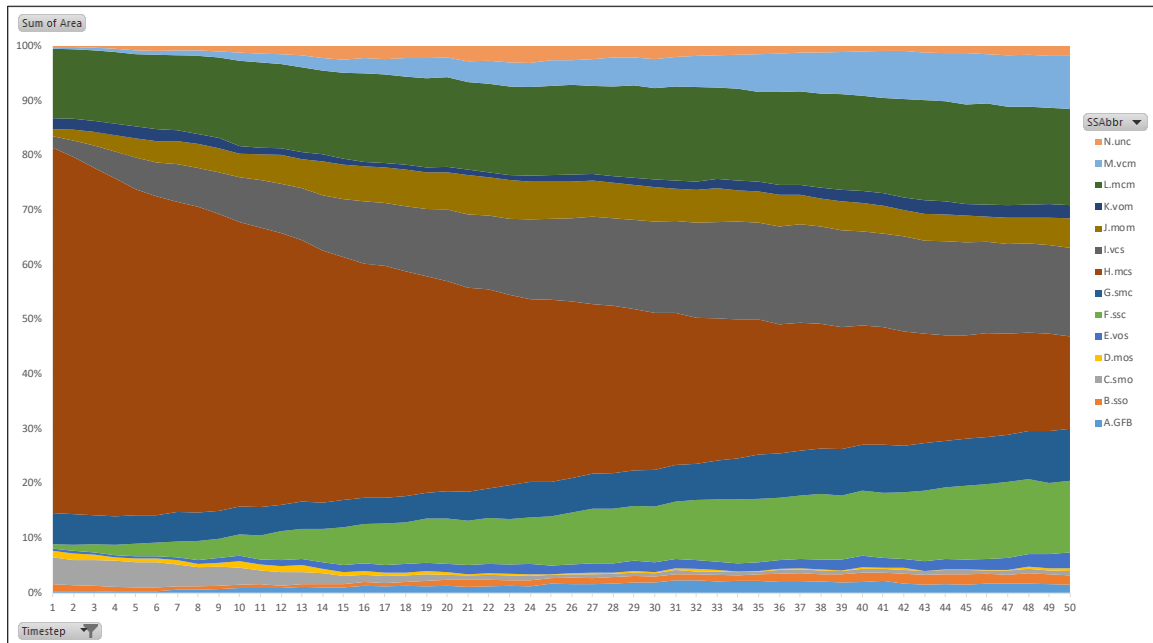
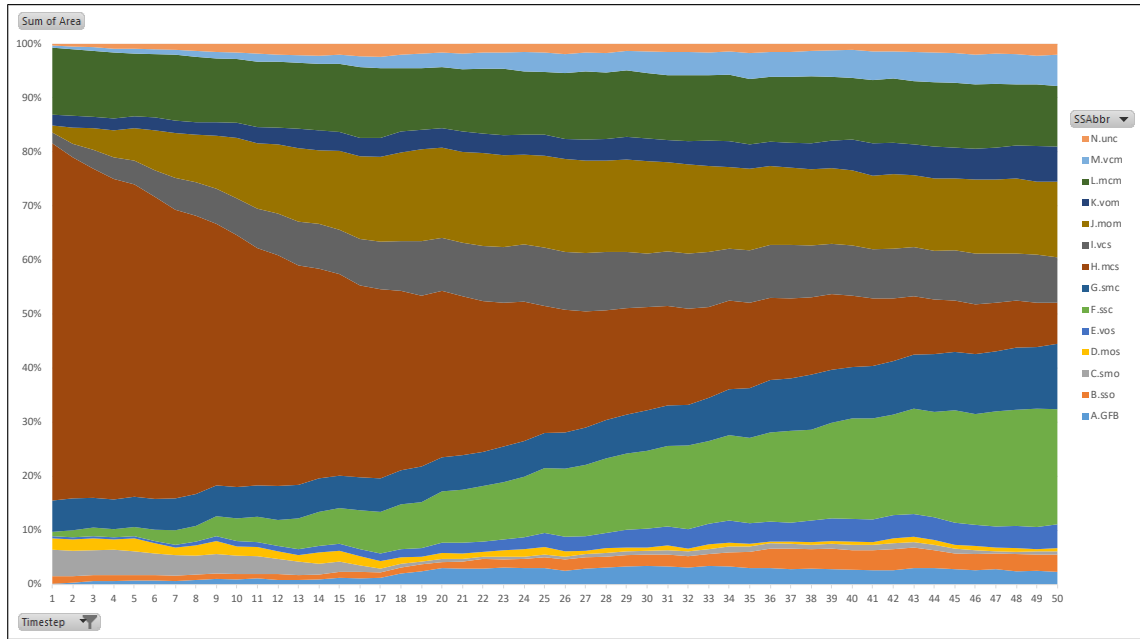


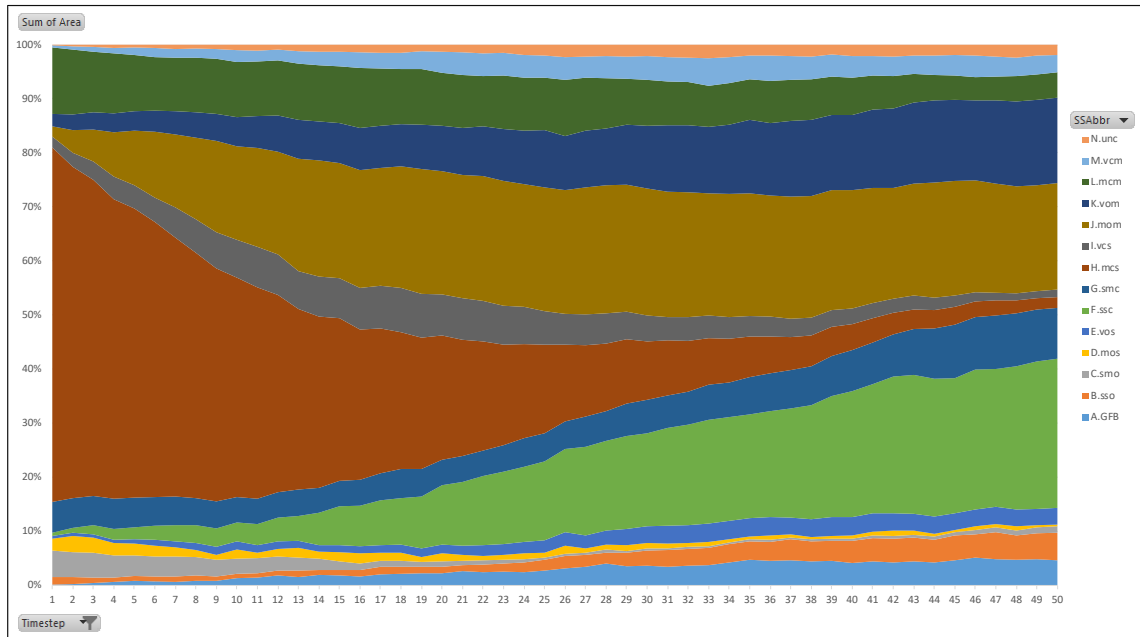
Figure 11. Mixed conifer with frequent fire modeled seral state distribution results – alternative 1

Under alternative 2, mixed conifer with frequent fire is 43 percent departed by year 15 as seedling/sapling under-represented states increase and medium to large closed canopy over-represented states decrease more rapidly (figure 12).



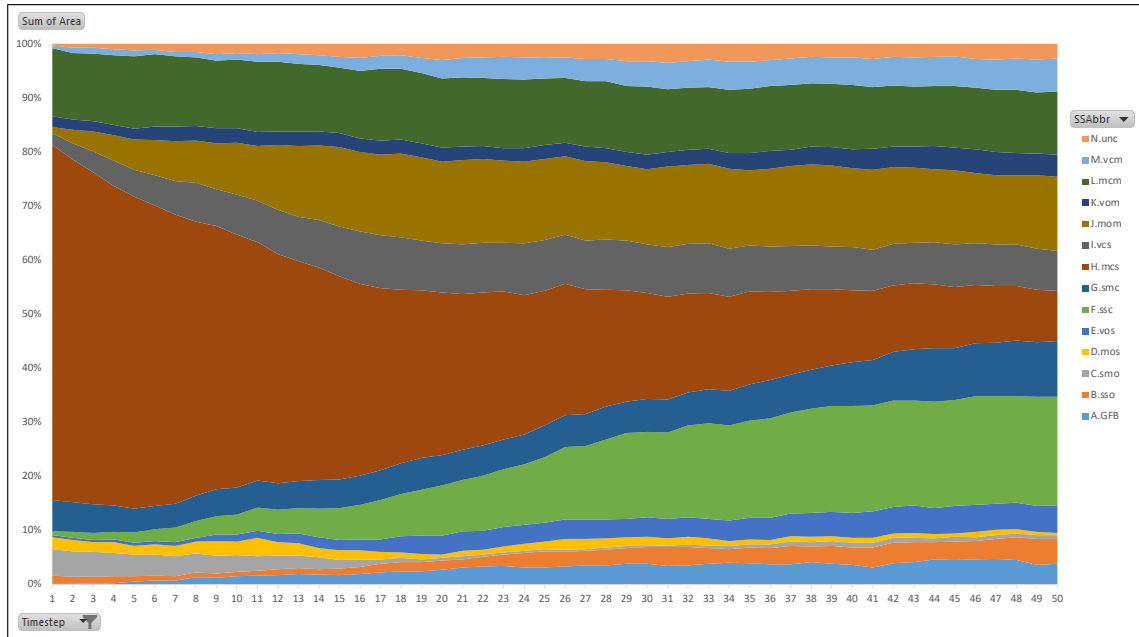
**Figure 12. Mixed conifer with frequent fire modeled seral state distribution results – alternative 2**

Under alternative 3, mixed conifer with frequent fire is 33 percent departed by year 15 as seedling/sapling under-represented states increase and medium to large closed canopy over-represented states decrease more rapidly than any other alternative (figure 13).



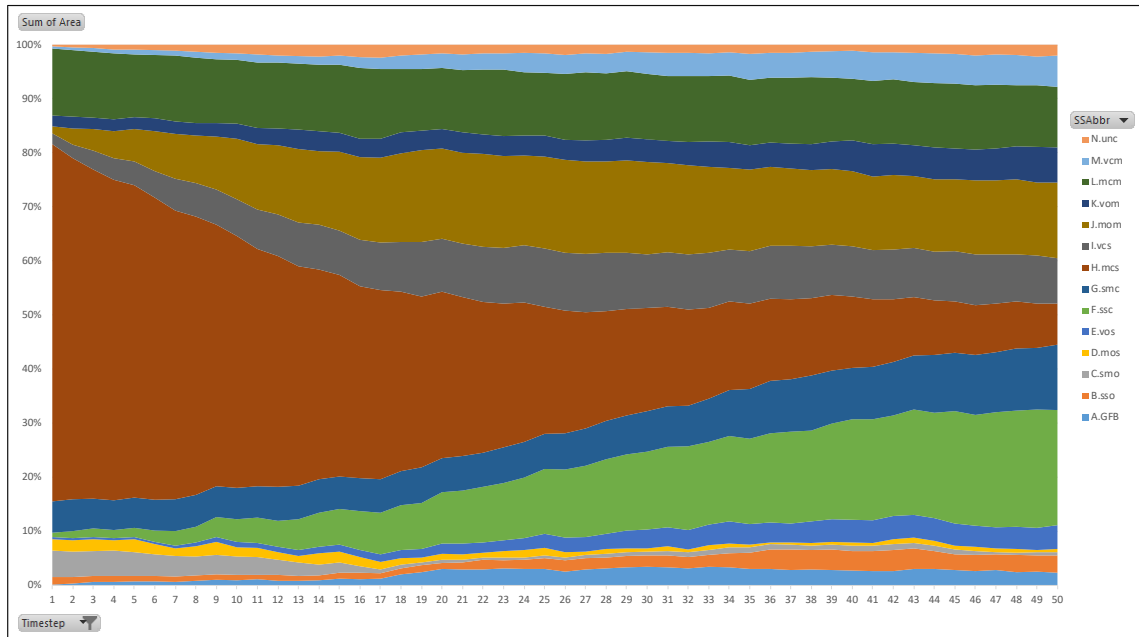
**Figure 13. Mixed conifer with frequent fire modeled seral state distribution results – alternative 3**

Under alternative 4, mixed conifer with frequent fire is 44 percent departed by year 15 as seedling/sapling under-represented states increase and medium to large closed canopy over-represented states decrease more rapidly (figure 14).



**Figure 14. Mixed conifer with frequent fire modeled seral state distribution results – alternative 4**

Under alternative 5, mixed conifer with frequent fire is 43 percent departed by year 15 as seedling/sapling under-represented states increase and medium to large closed canopy over-represented states decrease more rapidly (figure 15).



**Figure 15. Mixed conifer with frequent fire modeled seral state distribution results – alternative 5**

## Ponderosa Pine Forest

### Assumptions

Management related to prescribed fire and mechanical treatment varies among alternatives based on objectives. All fire treatment acres (prescribed fire and natural fire with resource objectives) were distributed among existing prescribed fire transitions following existing proportions in low, moderate, and high severity effects (table 14).

**Table 14. Average annual acres of prescribed fire (including natural fire with resource objectives) in each severity class for each alternative**

Annual prescribed fire transitions (acres)	Low (Treatment Type J)	Moderate (Treatment Type K)	High (Treatment Type L)
Alternative 1	527 (42.7%)	527 (42.7%)	180 (14.6%)
Alternative 2	4,376	4,376	1,495
Alternative 3	4,376	4,376	1,495
Alternative 4	5,870	5,870	2,005
Alternative 5	4,376	4,376	1,495

The same assumptions were used as in mixed conifer with frequent fire to distribute acres among mechanical treatment type under each alternatives (see table 15).

Mechanical treatments in alternative 1 are based on the recent averages of actual accomplished work. For action alternatives, initially mechanically treated acres were distributed among treatment types in the same proportions as in alternative 1. In alternatives 2, 3, and 5 all diameter cap treatments (type D and M) were removed and 2 percent, 8 percent, and 2 percent of the total mechanical treatment acres (respectively) were changed to even aged treatment to allow for insect and disease treatment (moved to type F – shelterwood seed cut to target basal area). Type F – shelterwood provides more total volume per acre, and was therefore judged to be more compatible with the theme of alternative 3. In alternatives 2, 3, and 5 all remaining harvest thinning (thin less than 16 inches diameter cap to target basal area and thin less than 9 inches diameter cap) was changed to type C – thin from below to target basal area; and all remaining fuels treatment acres (type M – thin to 9 inch diameter cap) were changed to type E – group selection with matrix thin to target basal area.

Alternative 4 treats the same number of fuels treatment acres as alternative 1 (the recent average), but instead of adding them all to type M those acres were distributed among harvest thin treatments in the proportion of current average acres for the three harvest thin treatments (type M – thin to 9 inches, type D – thin to 16 inches, and type C – thin from below to target basal area).

**Table 15. Mechanical treatment by alternative and type.**

Type Code	Treatment Type	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
B	Free thin, all sizes to target basal area	0	0	0	0	0
C	Thin-from-below to target basal area	87	442	864	432	442
D	Thin under a 16 inches diameter cap to target basal area	10	0	0	50	0
E	Group selection with matrix thin to target basal area	244	3,118	6,098	0	3,118
F	Shelterwood seed cut to target basal area	0	72	600	0	72
G	Clearcut with non-regeneration objective legacy trees	0	0	0	0	0

Type Code	Treatment Type	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
H	Clearcut/ coppice for hardwood regeneration	0	0	0	0	0
I	Planting	259	259	259	259	259
M	Thin under a 9 inches diameter cap	602	0	0	99	0

Run Settings

General Initial Conditions Options Output

Total Area Represented: 312901

Proportion of Cells:

Class	Proprn
A PP A.GFB	0.0532
B PP B.sso	0.0066
C PP C.smo	0.0821
D PP D.mos	0.1082
E PP E.vos	0.0105
F PP F.ssc	0.0236
G PP G.smc	0.0934
H PP H.mcs	0.4409
I PP I.vcs	0.0143
J PP J.mom	0.0335

New Age Delete Age Total: 1.

☒ Randomize initial TSD to a maximum of: 15

Reset Normalize End Values Load... Save As... TSD Ages Sort...

OK Cancel Run

Figure 16. Ponderosa pine forest model initial conditions states A through J

Run Settings

General Initial Conditions Options Output

Total Area Represented: 312901

Proportion of Cells:

Class	Proprn
F PP F.ssc	0.0236
G PP G.smc	0.0934
H PP H.mcs	0.4409
I PP I.vcs	0.0143
J PP J.mom	0.0335
K PP K.vom	0.002
L PP L.mcm	0.1284
M PP M.vcm	0.0033
N PP N.unc	0

New Age Delete Age Total: 1.

☒ Randomize initial TSD to a maximum of: 15

Reset Normalize End Values Load... Save As... TSD Ages Sort...

OK Cancel Run

Figure 17. Ponderosa pine forest model initial conditions states F through N

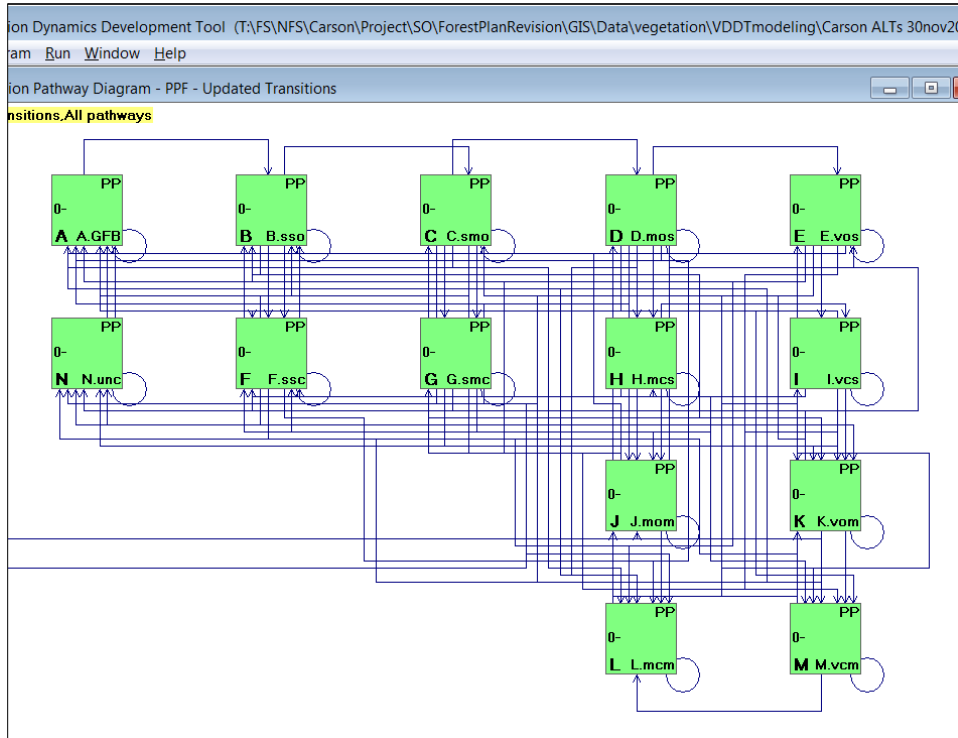


Figure 18. Ponderosa pine forest model (transition pathway diagram)

### Model Results

Under alternative 1, ponderosa pine forest is 82 percent departed by year 15 because of increasing over-representation in uncharacteristic closed states and only slightly more representation in the under-represented multi-story open states (figure 19).

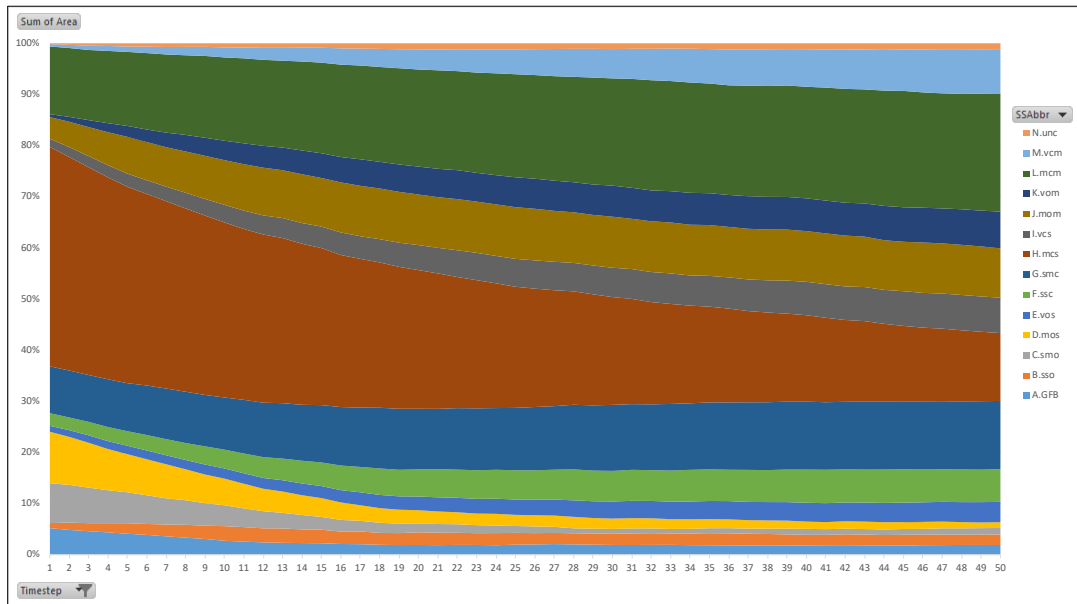
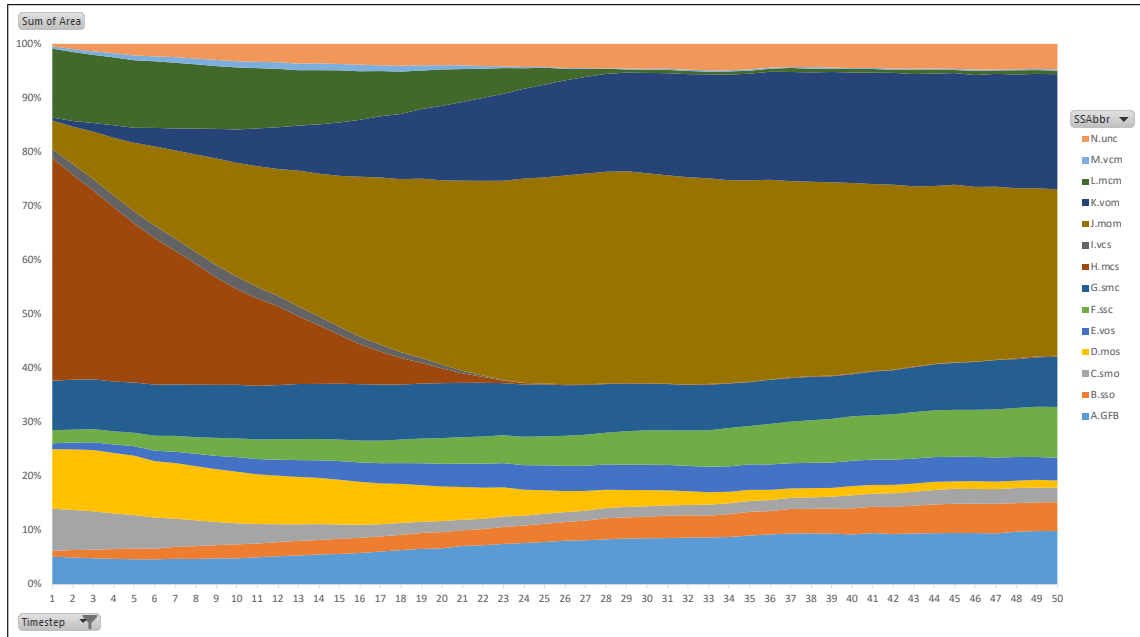


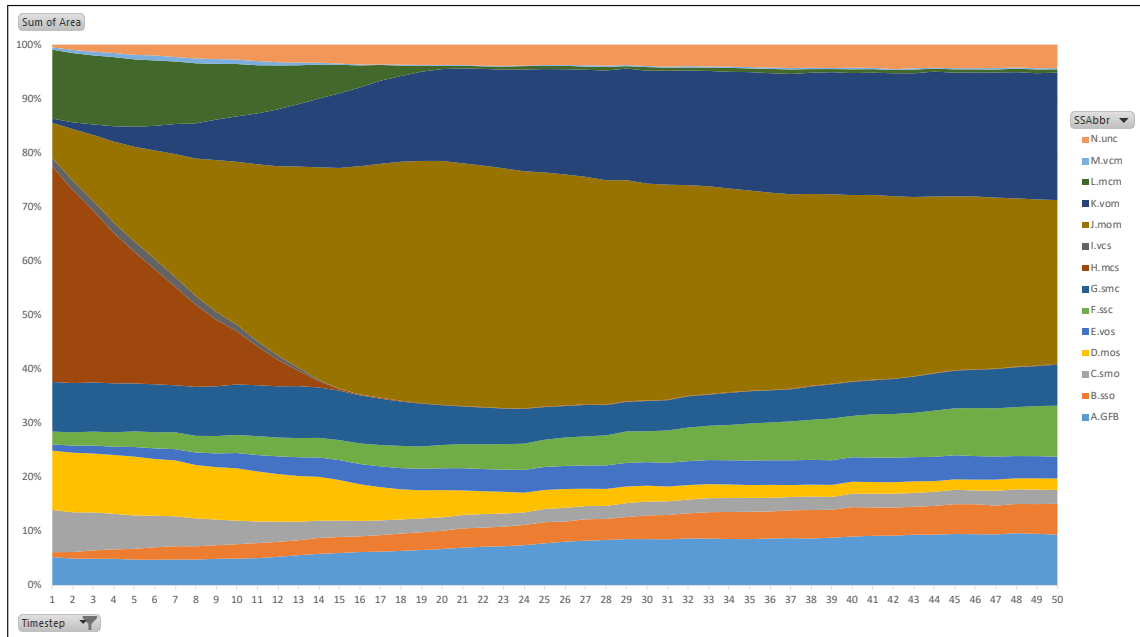
Figure 19. Ponderosa pine forest modeled seral state distribution results – alternative 1

Under alternative 2, ponderosa pine forest is 59 percent departed by year 15 because of a reduction in the over-representation in uncharacteristic closed states and significantly more representation in the under-represented multi-story open states (figure 20).



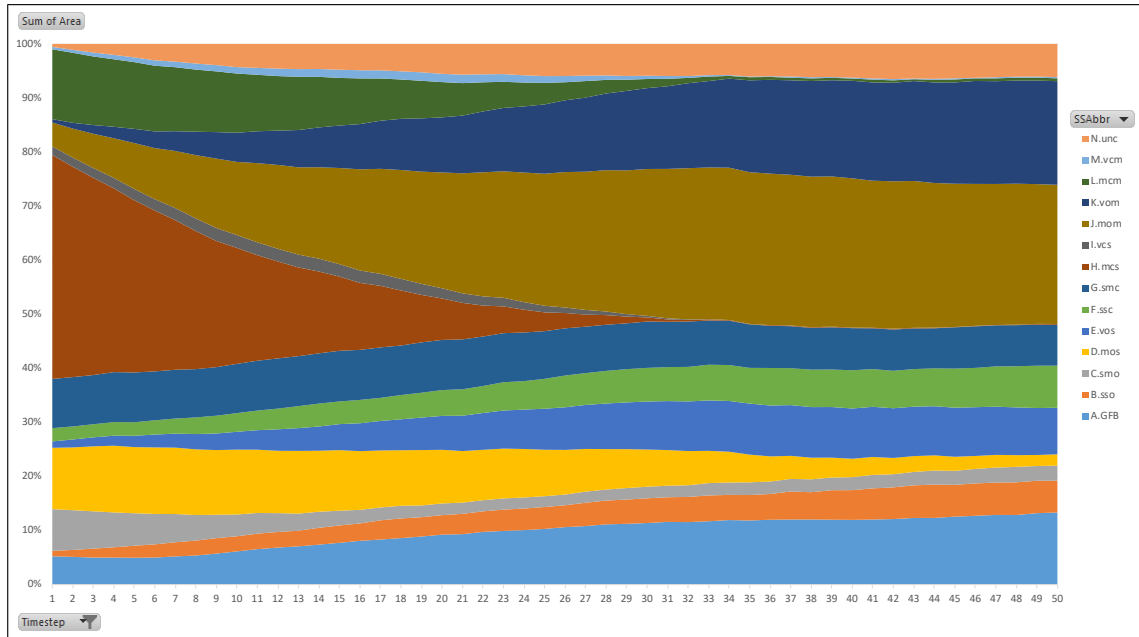
**Figure 20. Ponderosa pine forest modeled seral state distribution results – alternative 2**

Under alternative 3, ponderosa pine forest is 41 percent departed by year 15 because of a rapid and significant reduction in over-represented uncharacteristic closed states and significantly more representation in the under-represented multi-story open states (figure 21).



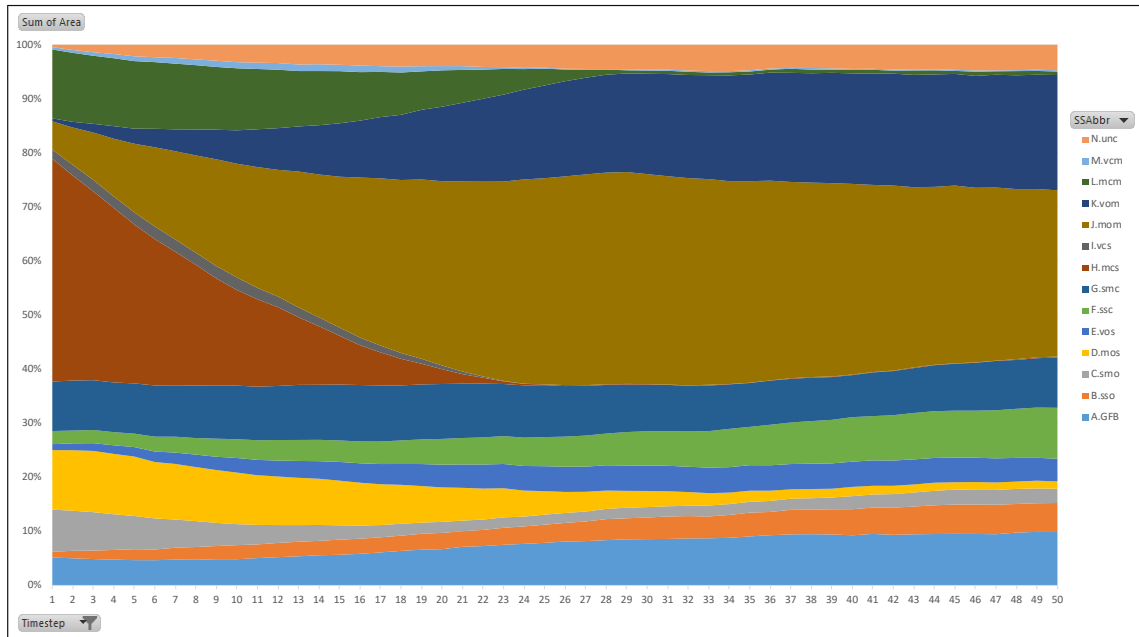
**Figure 21. Ponderosa pine forest modeled seral state distribution results – alternative 3**

Under alternative 4, ponderosa pine forest is 71 percent departed by year 15 because while there is a reduction in over-represented uncharacteristic closed states and there is only a slight increase in the under-represented multi-story open states (figure 22).



**Figure 22. Ponderosa pine forest modeled seral state distribution results – alternative 4**

Under alternative 5, ponderosa pine forest is 59 percent departed by year 15 because of a reduction in the over-representation in uncharacteristic closed states and significantly more representation in the under-represented multi-story open states (figure 23).



**Figure 23. Ponderosa pine forest modeled seral state distribution results – alternative 5**

## Piñon-Juniper Woodland

### Assumptions

Management related to prescribed fire and mechanical treatment does not vary among alternatives. Future wildfire and insect and disease frequency and severity are likely to differ from levels in the recent past, though in unpredictable ways. Therefore, they were modeled using recent averages under all alternatives. The number of acres managed using piñon-juniper woodland plan components varies under alternative 4 where grassland maintenance management areas are managed toward piñon-juniper woodland desired conditions, not grass as in other alternatives. Those acres are added to the initial condition in alternative 4 and have been excluded under all other alternatives.

Run Settings

General Initial Conditions Options Output

Total Area Represented: 159341

Proportion of Cells:

Class	Propr
A PJO GFB	0.1555
B PJO B.sso	0.0779
C PJO C.smo	0.1217
D PJO D.mvo	0.1306
E PJO E.ssc	0.0241
F PJO F.smc	0.0953
G PJO G.mvc	0.395

Total: 1.0001

☐ Randomize initial TSD to a maximum of: 0

OK Cancel Run

Figure 24. Piñon-juniper woodland model initial conditions – alternative 1, 2, 3, and 5

Run Settings

General Initial Conditions Options Output

Total Area Represented: 178196

Proportion of Cells:

Class	Propr
A PJO GFB	0.1983
B PJO B.sso	0.0705
C PJO C.smo	0.1097
D PJO D.mvo	0.1238
E PJO E.ssc	0.0223
F PJO F.smc	0.0882
G PJO G.mvc	0.3872

Total: 1.

☐ Randomize initial TSD to a maximum of: 0

OK Cancel Run

Figure 25. Piñon-juniper woodland model initial conditions- alternative 4

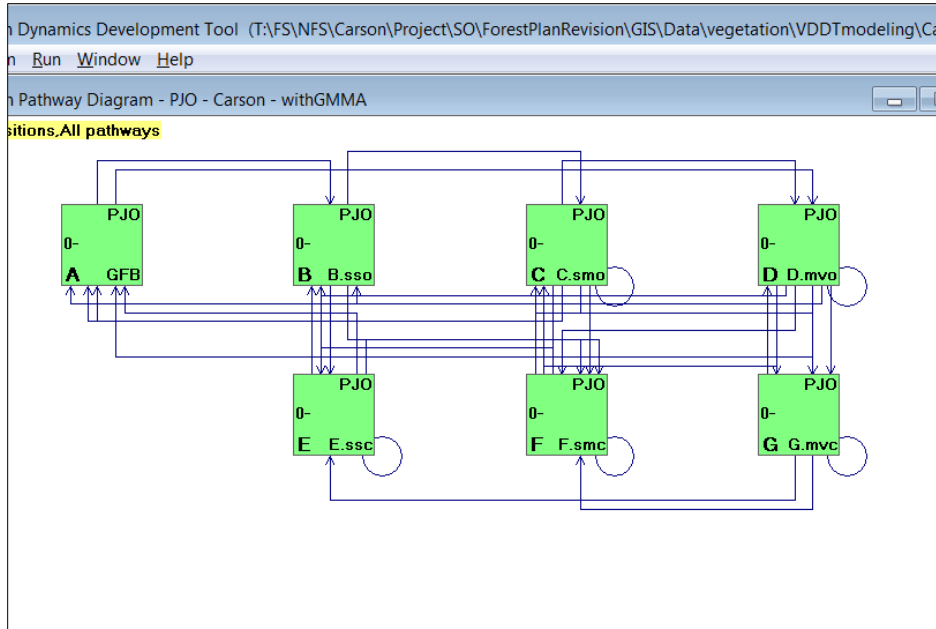


Figure 26. Piñon-juniper woodland model (transition pathway diagram)

### Model Results

Under all alternatives piñon-juniper woodland departure would decline as trees fill in open canopies and create more late-seral, closed states. Alternative 4 begins with a greater percentage in the grass-forb A-state because there is no Grassland Maintenance Management Area in that alternative and those cleared areas are included in the model (figure 27 and figure 28)

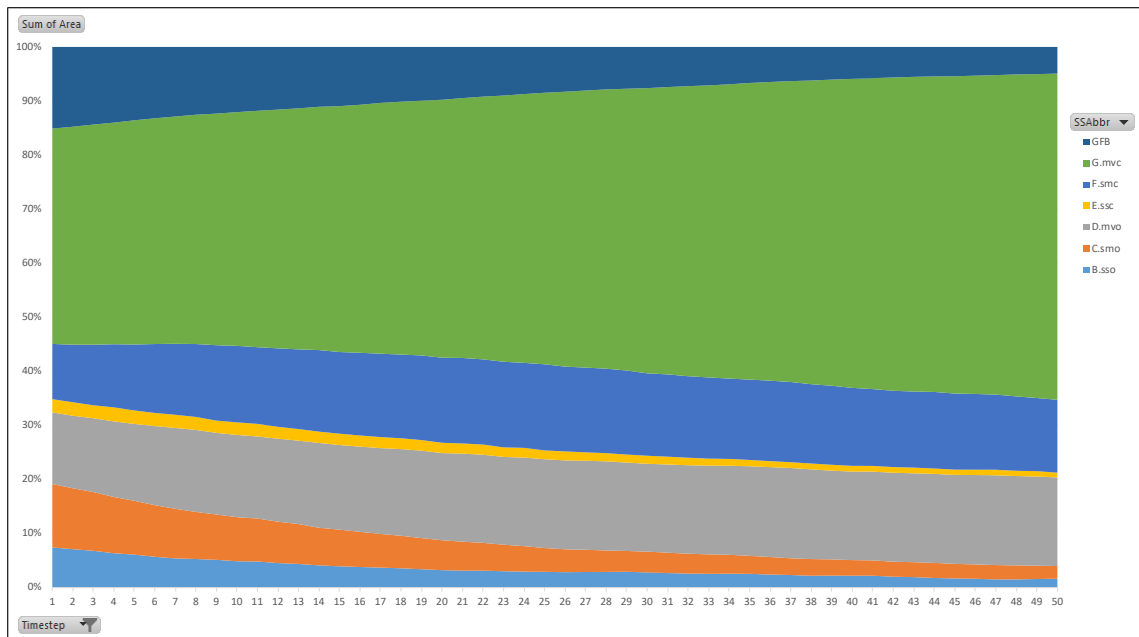
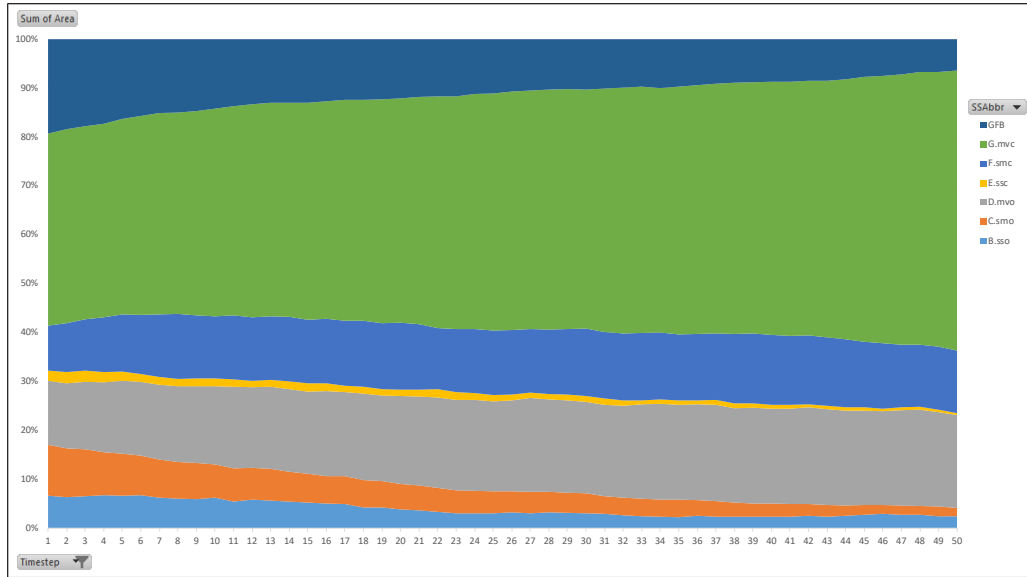


Figure 27. Piñon-juniper woodland modeled seral state distribution results – alternatives 1, 2, 3, and 5



**Figure 28. Piñon-juniper woodland modeled seral state distribution results – alternative 4**

## Piñon-Juniper Sagebrush

### Assumptions

Management related to prescribed fire and mechanical treatment does not vary among alternatives. Future wildfire and insect and disease frequency and severity are likely to differ from levels in the recent past, though in unpredictable ways. Therefore, they were modeled using recent averages under all alternatives. The number of acres managed using piñon-juniper sagebrush plan components varies under alternative 4 where grassland maintenance management areas are managed toward piñon-juniper sagebrush desired conditions, not grass as in other alternatives. Those acres are added to the initial condition in alternative 4 and have been excluded under all other alternatives.

Run Settings

General | Initial Conditions | Options | Output

Total Area Represented: 179494

Proportion of Cells:

Class	Proprn
A PJS A.GFB	0.243
B PJS B.sso	0.051
C PJS C.smo	0.1888
D PJS D.mvo	0.0707
E PJS E.ssc	0.0432
F PJS F.smc	0.0919
G PJS G.mvc	0.3114

Buttons: New Age, Delete Age, Total: 1., Randomize initial TSD to a maximum of: 0, OK, Cancel, Run, Reset, Normalize, End Values, Load..., Save As..., TSD, Ages, Sort...

**Figure 29. Piñon-juniper sagebrush model initial conditions – alternatives 1, 2, 3, and 5**

Run Settings

General Initial Conditions Options Output

Total Area Represented: 217326

Proportion of Cells:

Class	Class	Proprn
A	PJS A.GFB	0.3016
B	PJS B.sso	0.044
C	PJS C.smo	0.1953
D	PJS D.mvo	0.0597
E	PJS E.ssc	0.0358
F	PJS F.smc	0.0868
G	PJS G.mvc	0.2768

Reset Normalize End Values Load... Save As...

☐ TSD ☐ Ages

New Age Delete Age Total: 1. Sort...

☐ Randomize initial TSD to a maximum of: 0

OK Cancel Run

Figure 30. Piñon-juniper sagebrush model initial conditions – alternative 4

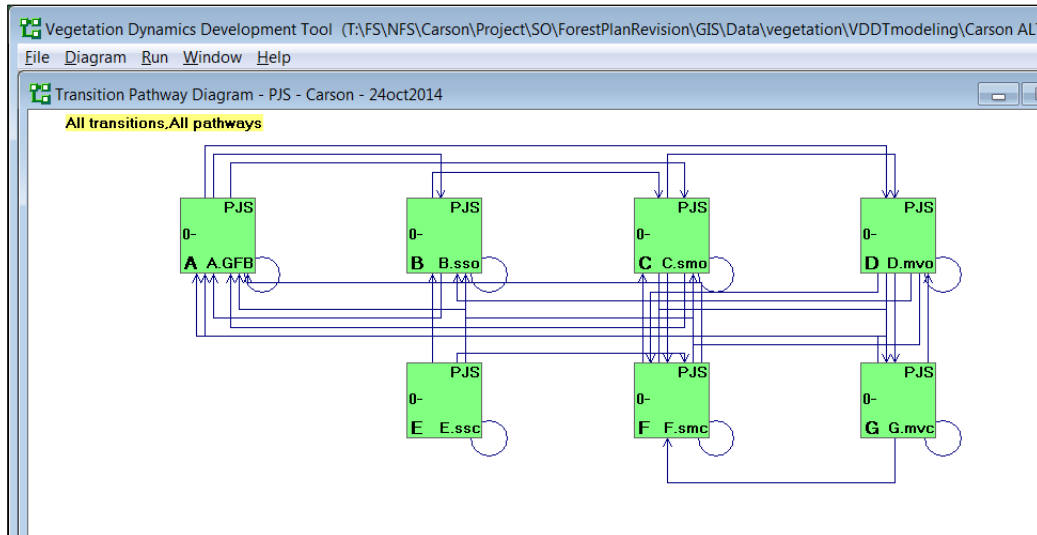


Figure 31. Piñon-juniper sagebrush model (transition pathway diagram)

## Model Results

Under all alternatives piñon-juniper sagebrush departure would decline over the first 15 years as trees fill in open canopies and create more late-seral, closed states. Alternative 4 begins with a greater percentage in the grass-forb A-state because there is no Grassland Maintenance Management Area in that alternative and those cleared areas are included in the model (figure 32 and figure 33).

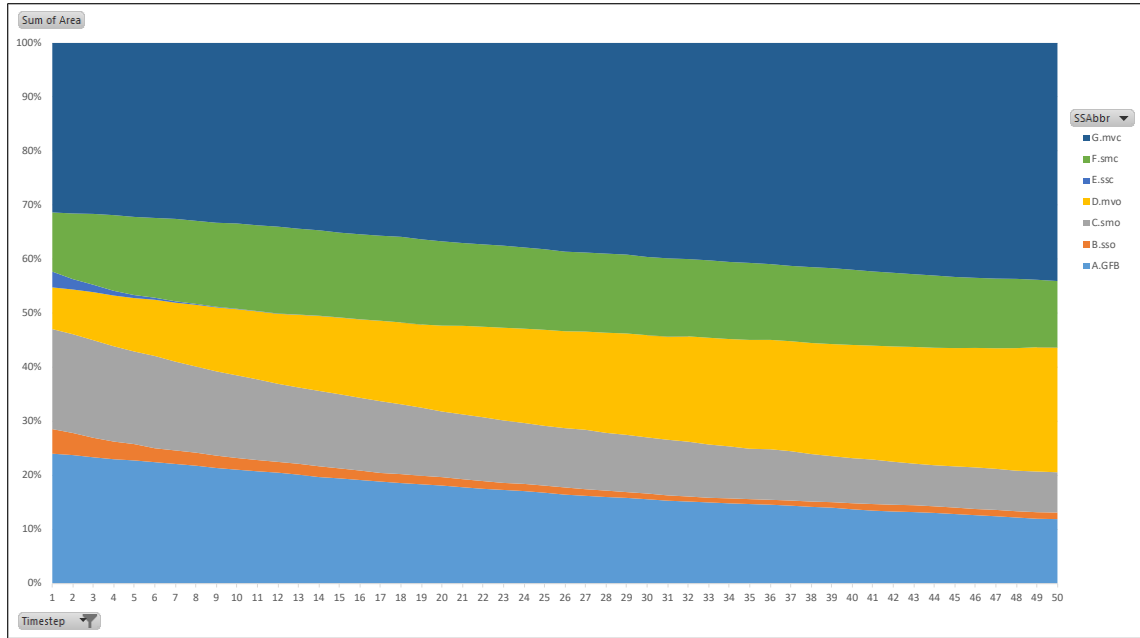


Figure 32. Piñon-juniper sagebrush modeled seral state distribution results – alternatives 1, 2, 3, and 5

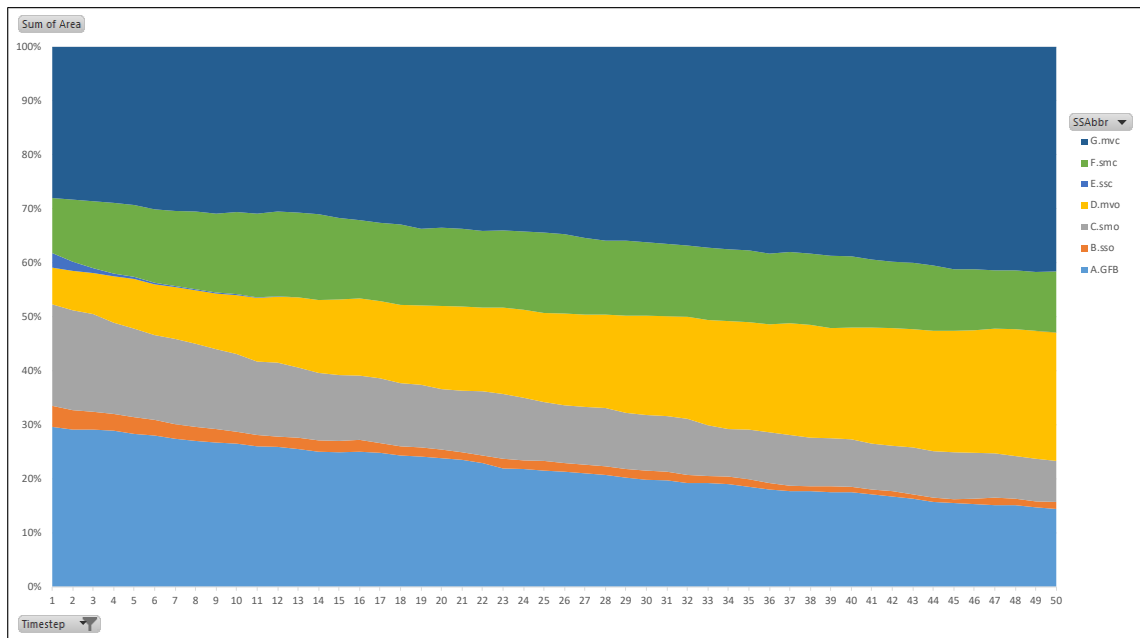


Figure 33. Piñon-juniper sagebrush modeled seral state distribution results – alternative 4

## Sagebrush

### Assumptions

Management related to prescribed fire and mechanical treatment does not vary among alternatives. Future wildfire and insect and disease frequency and severity are likely to differ from levels in the recent past, though in unpredictable ways. Therefore, they were modeled using recent averages under all alternatives.

**Run Settings**

General | **Initial Conditions** | Options | Output

Total Area Represented: 59144

Proportion of Cells:

	Class	Proprn
A	Early1 A.Early	0.08
B	Late1 B.LateCl	0.33
C	Mid1 C.Mid	0
D	Late1 D.LateOp	0.36
E	JUN E.JUN	0.23

Buttons: Reset, Normalize, End Values, Load..., Save As...

☐ TSD ☐ Ages

Total: 1.

☐ Randomize initial TSD to a maximum of: 0

Figure 34. Sagebrush model initial conditions

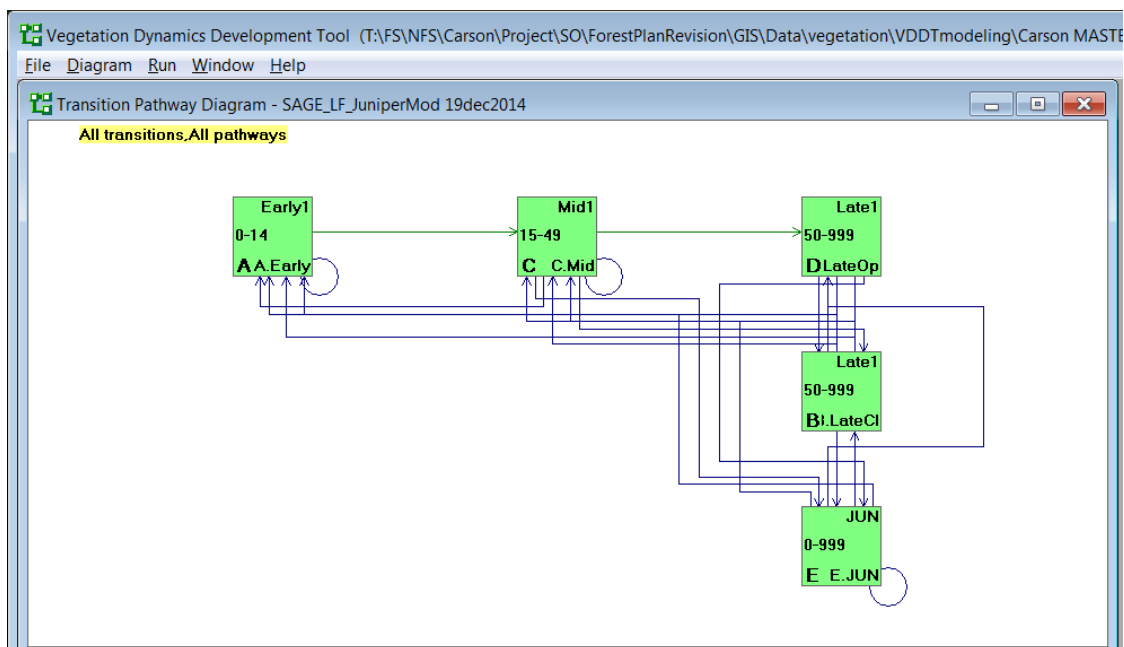
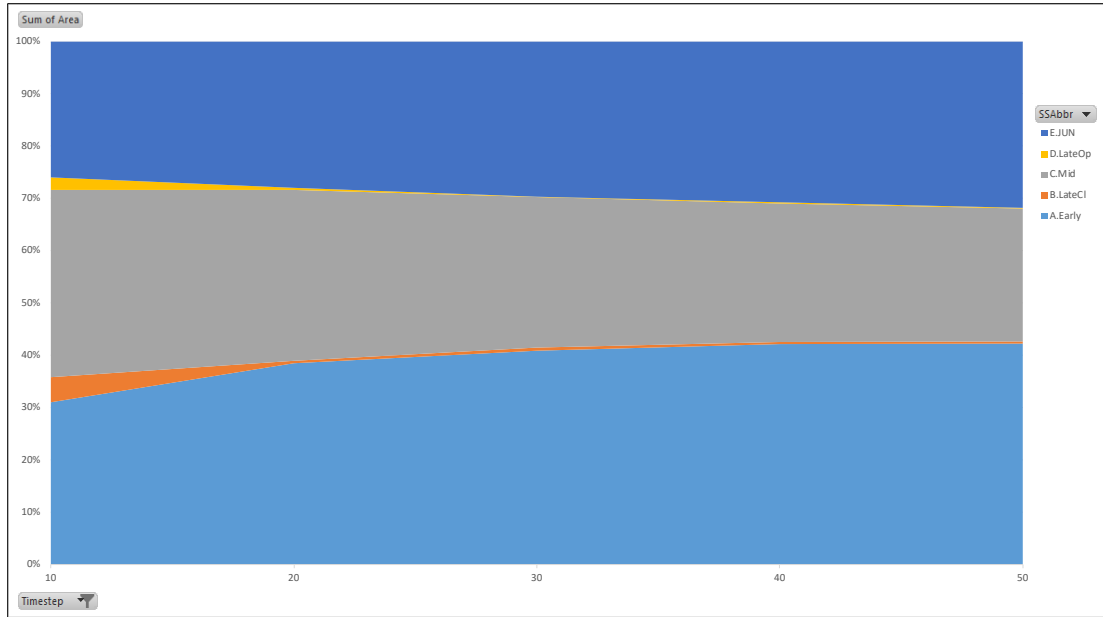


Figure 35. Sagebrush model

### Model Results

Seral state departure in sagebrush increases as the uncharacteristic E-treed state increases (figure 36).



**Figure 36. Sagebrush modeled seral state distribution results – all alternatives**

## Montane Subalpine Grassland

### Assumptions

Management related to prescribed fire and mechanical treatment in montane subalpine grassland does not vary among alternatives. Future wildfire and insect and disease frequency and severity are likely to differ from levels in the recent past, though in unpredictable ways. Therefore, they were modeled using recent averages under all alternatives.

Run Settings

General | Initial Conditions | Options | Output

Total Area Represented: 125351

Proportion of Cells:

Class	Proprn
A P A.GrOpn	0.0008
B P B.GrMid	0.2668
C P C.GrCls	0
D NP D.Shrub	0.3794
E R E.Ruderal	0.353

Buttons: Reset, Normalize, End Values, Load..., Save As...

Inputs: ☐ TSD, ☐ Ages, Sort...

Buttons: New Age, Delete Age, Total: 1.

☒ Randomize initial TSD to a maximum of: 100

**Figure 37. Montane subalpine grassland model initial conditions**

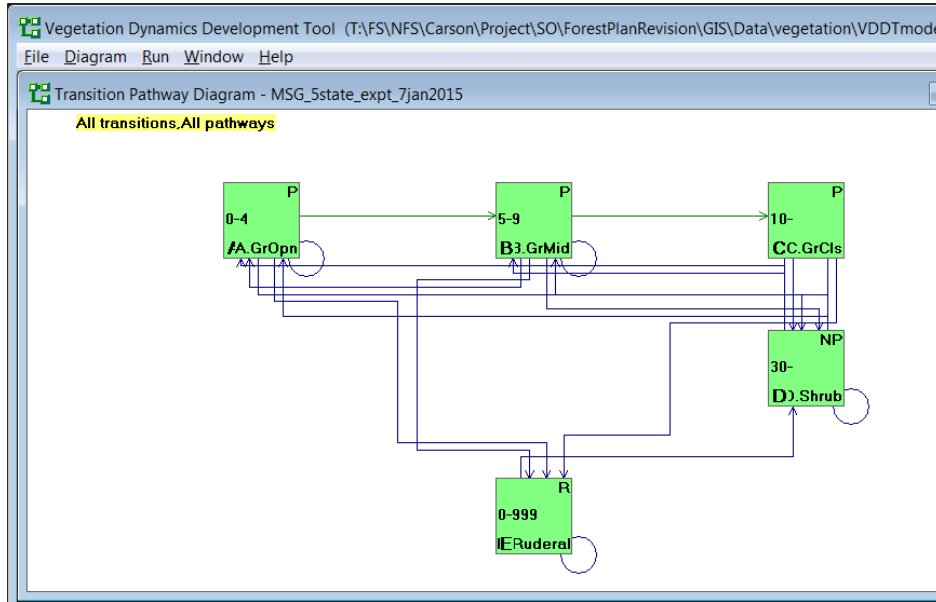


Figure 38. Montane subalpine grassland model (transition pathway diagram)

### Model Results

Seral state departure in montane subalpine grassland declines as uncharacteristic D-shrub states increase. Modeling also predicts a rapid infill of mid-seral grass creating closed grass states (figure 39).

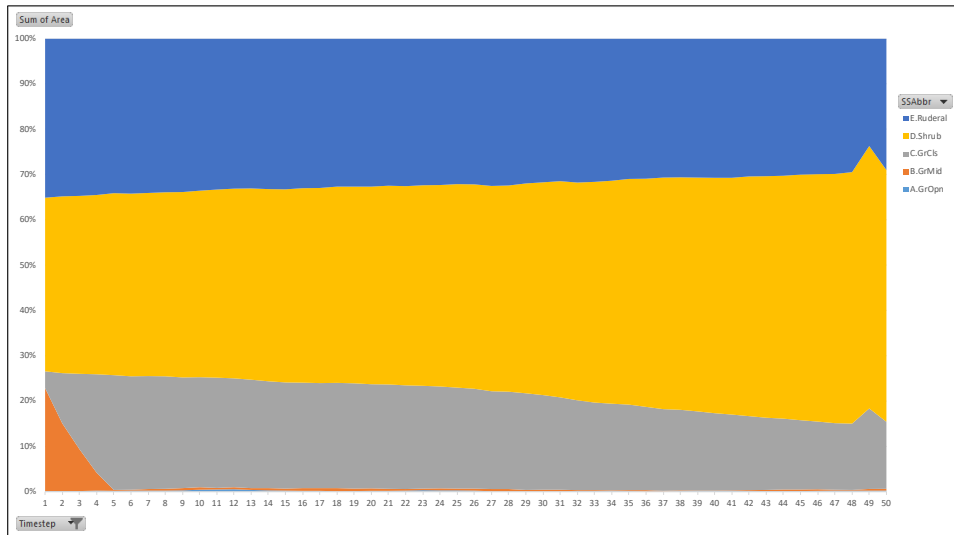


Figure 39. Montane subalpine grassland modeled seral state distribution results – all alternatives

## Coarse Woody Debris Calculations

Coarse woody debris tons per acre were calculated by multiplying acres in each seral state by coefficients that represent average values compiled from regional Forest Inventory and Analysis Program data (table 16). The calculated values based on current seral state proportions do not match actual measured values on the Carson National Forest. Therefore direct comparison of the current measured amount to a modeled future amount is not appropriate. Instead modeled current values (see table 17) are compared to modeled future values (see table 18) to determine the magnitude and direction of trend in amount (see table 19).

**Table 16. Coefficients for each ecological response unit by seral state for tons of coarse woody debris**

Seral State	Spruce-Fir Forest	Mixed Conifer, with Aspen	Mixed Conifer, with Frequent Fire	Ponderosa Pine Forest	Piñon-Juniper Woodland	Piñon-Juniper Sagebrush
A	7.2	8.8	5.1	1.8	2.6	0
B	31.8	30.5	13.7	3.9	2.1	0.4
C	35.1	32.7	18.0	5.1	2.3	1.6
D	37.3	31.7	5.7	3.3	4.8	5.1
E	58.2	35.6	8.8	13.7	1.0	1.8
F	38.5	39.0	13.4	3.9	6.1	4.3
G	50.0	12.3	18.0	5.9	8.2	7.6
H	23.4	54.7	28.4	8.8	N/A	N/A
I	32.8	57.0	36.8	15.0	N/A	N/A
J	56.0	42.7	5.1	3.1	N/A	N/A
K	7.9	N/A	54.5	6.0	N/A	N/A
L	25.2	N/A	22.3	8.3	N/A	N/A
M	34.7	N/A	26.4	11.4	N/A	N/A
N	51.6	N/A	0	0	N/A	N/A
O	47.5	N/A	N/A	N/A	N/A	N/A
P	48.1	N/A	N/A	N/A	N/A	N/A
Q	49.9	N/A	N/A	N/A	N/A	N/A
R	62.8	N/A	N/A	N/A	N/A	N/A
S	59.9	N/A	N/A	N/A	N/A	N/A

N/A indicates not applicable.

**Table 17. Calculated total tons of coarse woody debris by ecological response unit based on current seral state proportions**

Ecological Response Unit	Coarse Woody Debris
Spruce-Fir Forest	34.11
Mixed Conifer with Aspen	31.23
Mixed Conifer with Frequent Fire	26.28
Ponderosa Pine Forest	6.99
Piñon-Juniper Woodland	5.24
Piñon-Juniper Sagebrush	3.16

**Table 18. Calculated total tons of coarse woody debris by ecological response unit and alternative based on modeled seral state proportions at year 15**

Ecological Response Unit	Alternative	Coarse Woody Debris (tons)
Spruce-Fir Forest	All	36.06
Mixed Conifer with Aspen	All	34.46
Mixed Conifer with Frequent Fire	1	24.02
Mixed Conifer with Frequent Fire	2	22.04
Mixed Conifer with Frequent Fire	3	21.86
Mixed Conifer with Frequent Fire	4	21.75
Ponderosa Pine Forest	1	7.27
Ponderosa Pine Forest	2	5.21
Ponderosa Pine Forest	3	4.39
Ponderosa Pine Forest	4	5.57
Piñon-Juniper Woodland	1	5.81
Piñon-Juniper Woodland	2	5.92
Piñon-Juniper Woodland	3	5.92
Piñon-Juniper Woodland	4	5.81
Piñon-Juniper Sagebrush	1	3.98
Piñon-Juniper Sagebrush	2	4.28
Piñon-Juniper Sagebrush	3	4.28
Piñon-Juniper Sagebrush	4	3.98

**Table 19. Percent change in tons of coarse woody debris per acre from current to year 15**

Ecological Response Unit	Alternative	Coarse Woody Debris (Percent Change)
Spruce-Fir Forest	All	105.72%
Mixed Conifer with Aspen	All	110.35%
Mixed Conifer with Frequent Fire	1	91.38%
Mixed Conifer with Frequent Fire	2	83.87%
Mixed Conifer with Frequent Fire	3	83.19%
Mixed Conifer with Frequent Fire	4	82.76%
Ponderosa Pine Forest	1	104.06%
Ponderosa Pine Forest	2	74.49%
Ponderosa Pine Forest	3	62.76%
Ponderosa Pine Forest	4	79.66%
Piñon-Juniper Woodland	1	111.02%
Piñon-Juniper Woodland	2	113.06%
Piñon-Juniper Woodland	3	113.06%
Piñon-Juniper Woodland	4	111.02%
Piñon-Juniper Sagebrush	1	125.77%
Piñon-Juniper Sagebrush	2	135.24%
Piñon-Juniper Sagebrush	3	135.24%
Piñon-Juniper Sagebrush	4	125.77%

## Snag Calculations

Number of snags, both over 8 inches in diameter and over 18 inches in diameter, were calculated by multiplying acres in each seral state by coefficients that represent average values compiled from regional Forest Inventory and Analysis Program data (see table 20 and table 21). The calculated values based on current seral state proportions do not match actual measured values on the Carson National Forest.

Therefore direct comparison of the current measured number of snags to a modeled future number is not appropriate. Instead modeled current values (see table 22) are compared to modeled future values (see table 23) to determine the magnitude and direction of trend in number of snags (see table 24).

**Table 20. Coefficients for each ecological response unit by seral state for numbers of snags per acre over 8 inches**

Seral State	Spruce-Fir Forest	Mixed Conifer with Aspen	Mixed Conifer with Frequent Fire	Ponderosa Pine Forest	Piñon-Juniper Woodland	Piñon-Juniper Sagebrush
A	19.1	37.7	18.4	9.3	6.2	0
B	9.2	17.1	10.3	2.2	2.2	3.8
C	23.3	17.3	11.3	4.2	4.9	2.1
D	41.3	24.6	16.6	5.7	8.4	10.9
E	37.9	31.8	48.4	7.2	2.0	0
F	32.2	20.8	11.8	2.6	8.3	5.9
G	28.1	16.2	13.6	5.2	11.9	12.3
H	13.3	25.7	29.7	7.2	NA	NA
I	15.3	48.3	20.7	2.6	NA	NA
J	8.8	48.7	12.5	5.2	NA	NA
K	0	NA	20.5	4.4	NA	NA
L	13.6	NA	21.3	3.6	NA	NA
M	19.9	NA	17.3	8.3	NA	NA
N	15.0	NA	0	0	NA	NA
O	16.5	NA	NA	NA	NA	NA
P	4.7	NA	NA	NA	NA	NA
Q	5.5	NA	NA	NA	NA	NA
R	15.3	NA	NA	NA	NA	NA
S	8.8	NA	NA	NA	NA	NA
T	19.1	NA	NA	NA	NA	NA

N/A means not applicable.

**Table 21. Coefficients for each ecological response unit by seral state for number of snags per acre over 18 inches**

Seral State	Spruce-Fir Forest	Mixed Conifer with Aspen	Mixed Conifer with Frequent Fire	Ponderosa Pine Forest	Piñon-Juniper Woodland	Piñon-Juniper Sagebrush
A	0	11.1	5.3	1.6	3.4	0
B	2.7	4.8	2.0	1.0	1.3	0.2
C	6.2	6.8	1.3	1.3	1.2	0.8
D	3.1	5.3	1.0	1.0	2.7	3.4
E	23.4	11.5	4.0	4.0	0.3	0

Seral State	Spruce-Fir Forest	Mixed Conifer with Aspen	Mixed Conifer with Frequent Fire	Ponderosa Pine Forest	Piñon-Juniper Woodland	Piñon-Juniper Sagebrush
F	7.8	10.7	0.9	0.9	0.9	0.7
G	16.2	6.9	0.7	0.7	1.4	1.0
H	3.2	7.4	0.6	0.6	NA	NA
I	23.9	25.6	2.4	2.4	NA	NA
J	36.0	19.6	1.2	1.2	NA	NA
K	0	N/A	1.6	1.6	NA	NA
L	5.7	N/A	0.8	0.8	NA	NA
M	6.9	N/A	1.8	1.8	NA	NA
N	17.2	N/A	0	0	NA	NA
O	15.5	N/A	NA	NA	NA	NA
P	12.2	N/A	NA	NA	NA	NA
Q	13.4	N/A	NA	NA	NA	NA
R	23.9	N/A	NA	NA	NA	NA
S	36.0	N/A	NA	NA	NA	NA
T	0	N/A	NA	NA	NA	NA

NA means not applicable.

**Table 22. Calculated total number of snags by ecological response unit based on current seral state proportions**

Ecological Response Unit	Number of snags over 8 inches	Number of snags over 18 inches
Spruce-Fir Forest	26.61	4.69
Mixed Conifer with Aspen	22.95	5.82
Mixed Conifer with Frequent Fire	25.93	3.55
Ponderosa Pine Forest	7.99	0.89
Piñon-Juniper Woodland	8.33	1.87
Piñon-Juniper Sagebrush	5.16	0.69

**Table 23. Calculated total number of snags by ecological response unit and alternative based on modeled seral state proportions at year 15**

Ecological Response Unit	Alternative	Number of snags over 8 inches	Number of snags over 18 inches
Spruce-Fir Forest	All	25.56	6.01
Mixed Conifer with Aspen	All	24.20	7.99
Mixed Conifer with Frequent Fire	1	22.73	4.70
Mixed Conifer with Frequent Fire	2	21.23	4.67
Mixed Conifer with Frequent Fire	3	20.31	5.07
Mixed Conifer with Frequent Fire	4	21.73	4.87
Ponderosa Pine Forest	1	7.08	1.01
Ponderosa Pine Forest	2	5.48	1.14
Ponderosa Pine Forest	3	4.80	1.24

<b>Ecological Response Unit</b>	<b>Alternative</b>	<b>Number of snags over 8 inches</b>	<b>Number of snags over 18 inches</b>
Ponderosa Pine Forest	4	5.94	1.16
Piñon-Juniper Woodland	1	8.97	1.78
Piñon-Juniper Woodland	2	9.08	1.72
Piñon-Juniper Woodland	3	9.08	1.72
Piñon-Juniper Woodland	4	8.97	1.78
Piñon-Juniper Sagebrush	1	6.69	0.98
Piñon-Juniper Sagebrush	2	7.16	1.04
Piñon-Juniper Sagebrush	3	7.16	1.04
Piñon-Juniper Sagebrush	4	6.69	0.98

**Table 24. Percentage change in number of snags per acre from current to year 15**

<b>Ecological Response Unit</b>	<b>Alternative</b>	<b>Change in number of snags over 8 inches</b>	<b>Change in number of snags over 18 inches</b>
Spruce-Fir Forest	All	96.07%	128.02%
Mixed Conifer with Aspen	All	105.47%	137.40%
Mixed Conifer with Frequent Fire	1	87.67%	132.39%
Mixed Conifer with Frequent Fire	2	81.88%	131.57%
Mixed Conifer with Frequent Fire	3	78.33%	142.92%
Mixed Conifer with Frequent Fire	4	83.80%	137.14%
Ponderosa Pine Forest	1	88.66%	113.61%
Ponderosa Pine Forest	2	68.66%	128.73%
Ponderosa Pine Forest	3	60.07%	139.40%
Ponderosa Pine Forest	4	74.39%	130.82%
Piñon-Juniper Woodland	1	107.79%	95.81%
Piñon-Juniper Woodland	2	109.04%	92.39%
Piñon-Juniper Woodland	3	109.04%	92.39%
Piñon-Juniper Woodland	4	107.79%	95.81%
Piñon-Juniper Sagebrush	1	129.81%	141.83%
Piñon-Juniper Sagebrush	2	138.89%	149.31%
Piñon-Juniper Sagebrush	3	138.89%	149.31%
Piñon-Juniper Sagebrush	4	129.81%	141.83%

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# Appendix D – Timber Suitability and Planned Timber Program

## Introduction

Harvest of timber on National Forest System lands occurs for many different reasons, including ecological restoration, community protection in wildland-urban interfaces, habitat restoration, protection of municipal water supplies, and production of timber, pulp for paper, specialty woods for furniture, and fuel as a renewable energy source—all of which can support local businesses and employment. While timber harvest often occurs on lands classified as suitable for timber production, much of the forest products (timber, firewood, etc.) generated on the Carson National Forest has been, and will continue to be, produced as a result of restoration and fire protection activities that occur both on lands classified as suitable and those classified as unsuitable for timber production.

The 1976 National Forest Management Act guides land management planning on national forests and grasslands. Like all laws, it is a product of the social and political issues at the time of its passage. Beginning in the 1950s, the Forest Service was called upon to provide large amounts of wood products for the marketplace, and did so, using industrial forest management techniques that emphasized maximum production. As harvest levels increased over the decades, Congress and members of the public became increasingly concerned about the impacts of intensive forest management on national forests. The National Forest Management Act was enacted in response to those public concerns, most notably, concerns associated with clearcutting. Consequently, the law has numerous timber-specific management requirements that focus on the appropriate regulation of harvest practices, especially clearcutting. The political environment and social values related to national forest management have substantially changed since the National Forest Management Act was enacted. The largely utilitarian views of the 1950s have given way to a balanced and integrated view of national forest management. Timber harvest may be considered a resource use (as described in the Act) or a management tool to achieve desired conditions (an activity to improve or restore healthy forest conditions). Timber harvest may be used as a tool on all lands, even those that are not suitable for timber production, in order to achieve desired conditions. The agency now focuses land management plans on desired conditions (outcomes) rather than on production of goods and services (outputs). This shift in management direction affects how the agency presently analyzes the National Forest Management Act required timber harvest suitability and sustained yield limit.

The National Forest Management Act requires the agency to determine the suitability of National Forest System lands for timber production and has specific requirements for timber suitability analysis in land management plans. This analysis includes specific timber production terminology.

**Timber production** is the purposeful growing, tending, harvesting, and regeneration of regulated crops of trees to be cut into logs, bolts, or other round sections for industrial or consumer use (36 CFR 219.19). There is a distinction between regulated timber harvest as a resource use (timber production) and timber harvest as a management tool to achieve desired conditions.

**Projected wood sale quantity (PWSQ)** is the estimated quantity of timber and all other wood products that is expected to be sold from the plan area for the plan period. The projected wood sale quantity consists of the projected timber sale quantity as well as other woody material such as fuelwood, firewood, or biomass that is also expected to be available for sale. The projected wood sale quantity includes volume from timber harvest for any purpose based on expected harvests that would be consistent with the plan components. The projected wood sale quantity is also based on the planning unit's fiscal capability

and organizational capacity. Projected wood sale quantity is not a target nor a limitation on harvest, and is not an objective in the Carson National Forest plan (FSH) 1909.12, chapter 60, section 60.5.

**The projected timber sale quantity (PTSQ)** is the estimated quantity of timber meeting applicable utilization standards that is expected to be sold during the plan period. As a subset of the projected wood sale quantity, the projected timber sale quantity includes volume from timber harvest for any purpose from all lands in the plan area based on expected harvests that would be consistent with the plan components. The projected timber sale quantity is also based on the planning unit's fiscal capability and organizational capacity. Projected timber sale quantity is neither a target nor a limitation on harvest, and it is not an objective in the Carson National Forest plan (FSH) 1909.12, chapter 60, section 60.5.

**The sustained yield limit (SYL)** is the amount of timber, meeting applicable utilization standards, which can be removed from a forest annually in perpetuity on a sustained-yield basis<sup>4</sup>. It is the volume that could be produced in perpetuity on lands that may be suitable for timber production. Calculation of the limit includes volume from lands that may be deemed not suitable for timber production after further analysis during the planning process. The calculation of the sustained yield limit is not limited by land management plan desired condition, other plan components, or the planning unit's fiscal capability and organizational capacity. The sustained yield limit is not a target but is a limitation on harvest, except when the plan allows for a departure (FSH) 1909.12, chapter 60, section 60.5.

## Timber Suitability Analysis

Suitability is the appropriateness of applying certain resource management practices to a particular area of land, taking into consideration relevant social, economic, and ecological factors. Suitability is determined based on compatibility with plan desired conditions and objectives. This appendix provides descriptions of the criteria used in making the determination on the Carson National Forest along with the results of that determination for each plan alternative. The identification of an area as suitable for a particular use or uses guides project and activity decision making and is not a commitment or a final decision approving any particular project or activity. It does not mean that a particular use will or will not occur in the area. Per the 2012 Planning Rule, all forest plans must identify those lands that are suitable for timber production.

### Phase 1: Lands that may be Suitable for Timber Production

Identification of land that may be suitable for timber production is the first phase in the process of determining lands that are suited for timber production. This preliminary classification is made prior to the consideration of plan components that may impact where timber production is desired and permitted. Lands that may be suitable excludes National Forest System lands based on the following criteria:

- a. Land that is not forested, identified by having less than 10 percent tree cover at maturity or having a non-forest use (powerline clearings, residential or administrative sites, and improved pasture).
- b. Known environmental factors (e.g., poor site conditions) exist that preclude reasonable assurance that restocking can be achieved within 5 years of final regeneration harvest.
- c. Technology to harvest timber without causing irreversible damage is not currently available.
- d. Timber production is prohibited by statute, executive order, or regulation, or the Secretary of Agriculture or the Chief of the Forest Service has withdrawn the land from timber production.

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<sup>4</sup> National Forest Management Act at section 11, 16 U.S.C. 1611; 36 CFR 219.11(d)(6).

Examples include designated wilderness areas, designated wild river segments, research natural areas, or other designated areas where timber production is specifically prohibited.

Forest lands that remain after this initial screening (following removal of lands under A–D) are termed “lands that may be suitable for timber production,” and do not vary by alternative.

### Non-forested Lands (Criteria A)

The identification of suitable lands relied heavily on existing Terrestrial Ecological Unit Inventory data for the Carson National Forest. To address non-forested lands, all terrestrial ecological units that are not capable of supporting 10 percent tree cover were removed from the analysis. Because some forested terrestrial ecological units have unforested components that are not mapped in the Terrestrial Ecological Unit Inventory, the remaining lands were refined by removing non-forested areas (tree cover capability is less than 10 percent) based on the Forest Service midscale vegetation classification.

### Lands not Suitable for Timber Production due to Environmental and Technical Reasons (Criteria B and C)

The forested terrestrial ecological units remaining after criteria A screening were professionally evaluated by forest specialists<sup>5</sup> to determine their suitability based on soil and site productivity attributes in the terrestrial ecological unit reports. See table 25 below for a list of the terrestrial ecological units determined to be not suitable for timber production. The following conditions resulted in the exclusion of terrestrial ecological units from the suitable timber base (most excluded terrestrial ecological units had multiple contributing factors and conditions):

- Terrestrial ecological units with a climate class of 5(-1) or below which represents marginal growth conditions for ponderosa pine production. Cooler and wetter climate classes (above 5(-1)) may be marginal for the preferred timber species on that site but were included because they have the potential to support other (non-preferred) tree species.
- The presence and dominance of lithic soils which suggests lower restocking potential due to shallow soils.
- Low reforestation potential or poor soil conditions which would limit the ability to reforest within 5 years following final regeneration harvest.
- Low site indices (generally 60 or below) which suggest low site productivity and inadequate restocking potential.
- Severe erosion and mass wasting potential which suggest timber harvest may cause irreversible damage to the site and to soil productivity.
- Other sensitive soil types and steep slopes (usually over 40 percent slope) which suggest likely irreversible damage.

To refine the analysis, slopes greater than 40 percent (areas susceptible to irreversible damage) were removed from the remaining Terrestrial Ecological Unit Inventory map units.

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<sup>5</sup> Timber suitability workshop for the Santa Fe National Forest and Carson National Forest was held on December 4, 2017. Participants and attendees: Greg Miller (Soil Scientist), Jim Arcineiga (Forester), Peter Rich (Assistant Forest Planner), Robert Madera (Ecologist), Ken Reese (Forester), and Estella Smith (Soil Scientist).

**Table 25. Terrestrial Ecological Unit Inventory (TEUI) mapping units not suitable for timber production**

<b>TEUI Mapping Unit</b>	<b>Ecological Response Unit</b>	<b>Adequate restocking (criteria B)</b>	<b>Available technology (criteria C)</b>	<b>Reason for finding of not suitable for timber production</b>
156	Ponderosa Pine Forest	No	Yes	Shallow soils, low productivity
179	Spruce-Fir Forest	No	No	Rocky outcrops, shallow soil inclusions, steep, erodible soils
202	Ponderosa Pine Forest	No	No	Steep, shallow soils, droughty, low reforestation potential
302	Bristlecone Pine	No	No	Steep, droughty, low site index, not a commercial species
306	Spruce-Fir Forest	No	No	Erodible soils
309	Spruce-Fir Forest	Yes	No	Erodible soils
311	Ponderosa Pine Forest	No	No	Shallow, rocky soils, low-moderate reforestation potential
313	Spruce-Fir Forest	No	No	Erodible soils
317	Spruce-Fir Forest	No	No	Steep, erodible soils
450	Ponderosa Pine Forest	No	No	Steep, rocky, low reforestation potential
475	Spruce-Fir Forest	No	No	Timber is not an identified use, steep, low productivity
531	Ponderosa Pine Forest	No	No	Low site index, low soil strength
626	Ponderosa Pine Forest	No	No	Cobbly soils, low site index, low reforestation potential
631	Ponderosa Pine Forest	No	No	Unstable soils, low site index
632	Spruce-Fir Forest	Yes	No	Portions are too wet, unstable soils
634	Spruce-Fir Forest	No	Yes	Cobbly, low site index, low reforestation potential
800	Ponderosa Pine Forest	No	No	Shallow soils, steep, droughty
803	Mixed Conifer - Frequent Fire	Yes	No	Steep, oak competition
817	Mixed Conifer - Frequent Fire	Yes	No	Steep, erodible, rocky soils
820	Mixed Conifer w/ Aspen	Yes	No	Steep, erodible, rocky soils
822	Mixed Conifer - Frequent Fire	No	No	Low productivity, steep
823	Mixed Conifer w/ Aspen	No	No	Low productivity, steep, rocky
921	Mixed Conifer w/ Aspen	No	No	Low productivity, steep
922	Mixed Conifer w/ Aspen	No	No	Low productivity, steep
974	Sparsely Vegetated	No	No	Erodible, acidic soils
999	Spruce-Fir Forest	No	No	Steep, rocky soils

### Lands Withdrawn from Timber Production (Criteria D)

Remaining lands were removed from the suitable timber base if timber production has been legally prohibited (criteria D). Areas removed because timber production is not allowed include designated wilderness areas (Pecos, Wheeler Peak, Columbine-Hondo, Latir Peak, Cruces Basin, and Chama River Canyon wilderness areas), The Rio Grande Wild and Scenic River, and inventoried roadless areas. Other designated areas with management specified by the laws associated with their enactment including,

national recreational trails, national scenic trails, and national historic trails were not removed from lands that may be suitable for timber production because sustainable timber harvest is not inconsistent with the law, regulation, policy, or plan direction that directs management of these lands. For these areas, site specific analyses during project planning would determine appropriate timber harvest prescriptions that are consistent with plan components for these areas.

### Lands that may be Suitable for Timber Production

Based on this first phase of the suitability analysis, there are 465,350 acres on the Carson National Forest that may be suitable for timber production (table 26). These “lands that may be suitable for timber production” do not vary among action alternatives in the forest plan revision environmental impact statement. The previous plan used a different process to identify lands that may be suitable. The previous process was not based on terrestrial ecological unit mapping or midscale vegetation mapping and was more generalized. The accuracy of mapping was lower and used different criteria for classification. Also the order in which non-suitable lands are removed affects the number of acres in each category. For example, there are areas above tree line (non-forested) that are also in wilderness areas (withdrawn from timber production) that are counted on line 2 in table 26, not on line 4. In the previous process, those areas were included in lands withdrawn from timber production. All these factors contribute to a slightly different total for lands that may be suitable under the existing plan (487,898 acres). The actual location of those acres is significantly different.

**Table 26. Determination of lands that may be suitable for timber production**

<b>Land classification category</b>	<b>Acres not suitable for timber production</b>	<b>Potentially suitable acres</b>
1. Total Carson National Forest acres	not applicable	1,486,353
2. Non-forested land	747,743	not applicable
3. Lands where irreversible resource damage is likely and adequate restocking cannot be assured	212,093	not applicable
4. Lands withdrawn from timber production	61,167	not applicable
5. Total lands not suitable for timber production due to legal, technical, or environmental reasons (line 2+3+4)	1,021,003	not applicable
6. Lands that may be suitable for timber production (line 1-5)	not applicable	465,350

### Phase 2: Lands suited and not suited for timber production based on compatibility with desired conditions and objectives

The second phase of the timber suitability analysis determines which of the lands that may be suitable for timber production (identified in phase 1) are suited for timber production based on the plan components described by each alternative. Additional areas may be removed from the suitable timber base when desired conditions, standards, and guidelines are not compatible with timber production. Lands and areas that met the following criteria were defined as suitable for timber production:

- Timber production is a desired primary or secondary use of the land.
- Timber production is anticipated to continue after desired conditions have been achieved.
- A flow of timber can be planned and scheduled on a reasonably predictable basis.
- Regeneration of the stand is intended.
- Timber production is compatible with the desired conditions or objectives for the land.

On lands identified unsuitable for timber production in this phase, harvest may still occur to protect or manage for multiple-use values other than timber production. Common examples include salvage, sanitation, public health, or safety, but may also include various other restoration activities. For example, meadow restoration may require cutting encroaching trees. While this activity may produce timber as a byproduct, the treatment would have objectives other than timber production (e.g., keeping the meadow open as per desired conditions for that vegetation type) and would not be included in the suitable timber base. Table 27 shows management areas considered in each alternative of the plan revision environmental impact statement, and whether they are suitable or not suitable for timber production.

**Table 27. Lands and areas suitable and not suitable for timber production**

Alternative	Area	Suitable	Not Suitable
1	Eligible Wild and Scenic River Management Area – wild classification		X
1	Eligible Wild and Scenic River Management Area – scenic or recreational classification	X	
1	Potential Recreation Area		X
1	Existing Recreation Area		X
1	Special Areas (Botanical, Zoological)		X
1	Semi-Primitive Areas (RARE II and New Mexico Wilderness Study Committee recommended areas)		X
1	Valle Vidal		X
2, 5	Recommended Wilderness Management Area		X
2, 5	Eligible Wild and Scenic River Management Area – wild classification		X
2, 5	Eligible Wild and Scenic River Management Area – scenic or recreational classification	X	
2, 5	Developed Winter and Summer Resort Management Area	X	
2, 5	Jicarilla Natural Gas Management Area	X	
2, 5	Grassland Maintenance Management Area		X
2, 5	Valle Vidal Management Area	X	
2, 5	San Antonio Management Area	X	
3	Eligible Wild and Scenic River Management Area – wild classification		X
3	Eligible Wild and Scenic River Management Area – scenic or recreational classification	X	
3	Developed Winter and Summer Resort Management Area	X	
3	Jicarilla Natural Gas Management Area	X	
3	Grassland Maintenance Management Area		X
3	Off-Highway Vehicle Management Area	X	
4	Recommended Wilderness Management Area		X
4	Eligible Wild and Scenic River Management Area – wild classification		X
4	Eligible Wild and Scenic River Management Area – scenic or recreational classification	X	
4	Developed Winter and Summer Resort Management Area	X	
4	Jicarilla Natural Gas Management Area	X	
4	Valle Vidal Management Area		X
4	San Antonio Management Area		X
4	Wetland Jewels Management Area	X	
4	Rio Grande Cutthroat Trout Management Area	X	

Since management areas differ by alternative (based on alternative theme), the resultant acres identified as suitable for timber production vary by alternative. The following tables (table 28 through table 32) and maps (figure 40 through figure 44) display the criteria and resulting acres considered to be suitable for timber production by alternative.

**Table 28. Alternative 1 timber production suitability determination**

Phase of the Timber Suitability Analysis	Land classification category	Acres
1st	A. Total National Forest System lands in the plan area	1,486,353
1st	B. Lands not suitable for timber production due to legal, technical, or environmental reasons	1,021,003
1st	C. Lands that may be suitable for timber production	465,350
2nd	E. Lands removed because timber harvest is not consistent with plan direction	see E-1 to E-6
2nd	E-1. Eligible Wild and Scenic River – wild classification	6,545
2nd	E-2. Potential Recreation Area	3168
2nd	E-3. Existing Recreation Area	785
2nd	E-4. Special Areas (Botanical, Zoological)	916
2nd	E-5. Semi-Primitive Areas (RARE II and New Mexico Wilderness Study Committee recommended areas)	3,745
2nd	E-6. Valle Vidal	67,836
2nd	F. Total lands not suitable for timber production (B+E)	1,103,999
2nd	G. Total lands suitable for timber production (A-F)	382,355

**Table 29. Alternative 2 timber production suitability determination**

Phase of the Timber Suitability Analysis	Land classification category	Acres
1st	A. Total National Forest System lands in the plan area	1,486,353
1st	B. Lands not suitable for timber production due to legal, technical, or environmental reasons	1,021,003
1st	C. Lands that may be suitable for timber production	465,350
2nd	E. Lands removed because management objectives limit timber harvest	see E-1 to E-3
2nd	E-1. Recommended Wilderness	2,880
2nd	E-2. Eligible Wild and Scenic River – wild classification	6,545
2nd	E-3. Grassland Maintenance Management Area	81
2nd	F. Total lands not suitable for timber production (B+E)	1,030,509
2nd	G. Total lands suitable for timber production (A-F)	455,844

**Table 30. Alternative 3 timber production suitability determination**

Phase of the Timber Suitability Analysis	Land classification category	Acres
1st	A. Total National Forest System lands in the plan area	1,486,353
1st	B. Lands not suitable for timber production due to legal, technical, or environmental reasons	1,021,003
1st	C. Lands that may be suitable for timber production	465,350
2nd	E. Lands removed because management objectives limit timber harvest	see E-1 and E-2

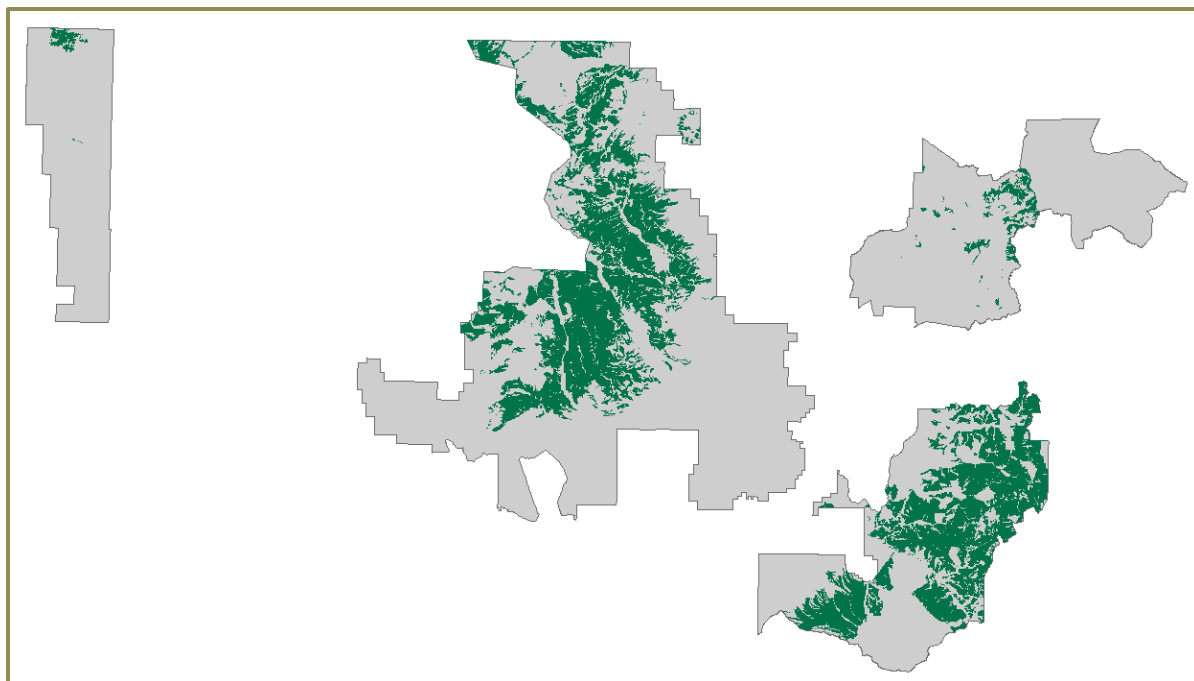
Phase of the Timber Suitability Analysis	Land classification category	Acres
2nd	E-1. Eligible Wild and Scenic River – wild classification	6,545
2nd	E-2. Grassland Maintenance Management Area	81
2nd	F. Total lands not suitable for timber production (B+E)	1,027,629
2nd	G. Total lands suitable for timber production (A-F)	458,724

**Table 31. Alternative 4 timber production suitability determination**

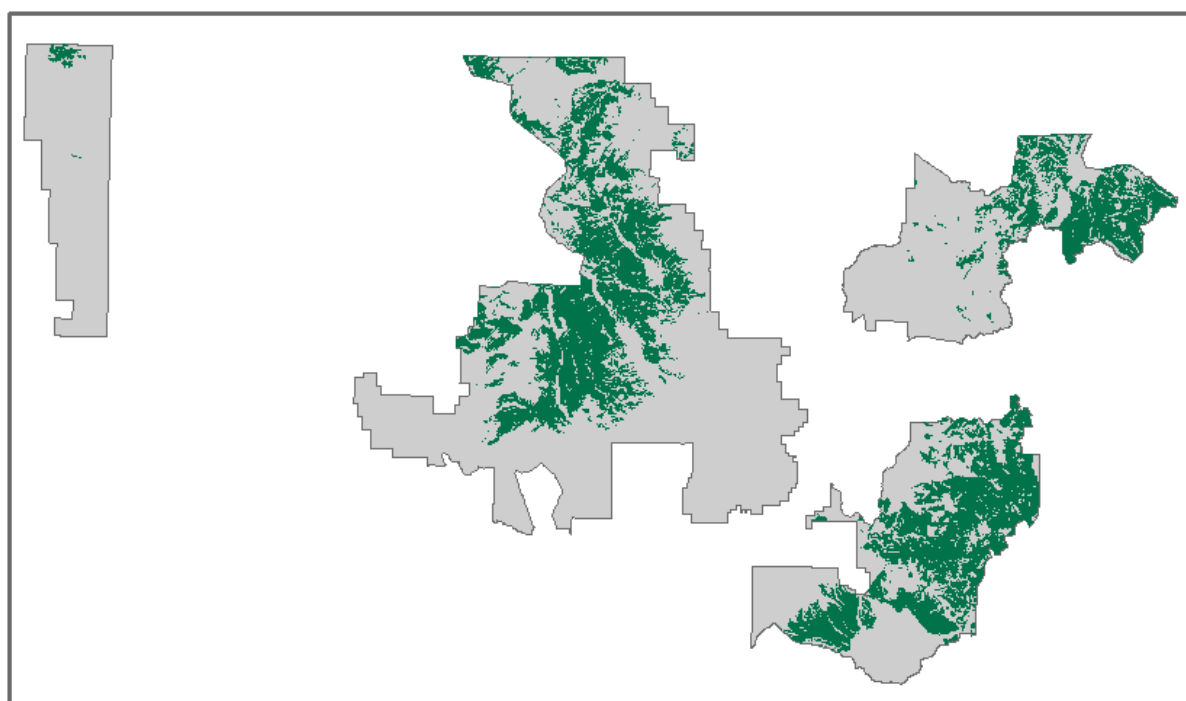
Phase of the Timber Suitability Analysis	Land classification category	Acres
1st	A. Total National Forest System lands in the plan area	1,486,353
1st	B. Lands not suitable for timber production due to legal, technical, or environmental reasons	1,021,003
1st	C. Lands that may be suitable for timber production	465,350
2nd	E. Lands removed because management objectives limit timber harvest	see E-1 to E-4
2nd	E-1. Recommended Wilderness	18,093
2nd	E-2. Eligible Wild and Scenic River – wild classification	6,545
2nd	E-3. Valle Vidal Management Area	61,788
2nd	E-4. San Antonio Management Area	26,954
2nd	F. Total lands not suitable for timber production (B+E)	1,134,383
2nd	G. Total lands suitable for timber production (A-F)	351,970

**Table 32. Alternative 5 timber production suitability determination**

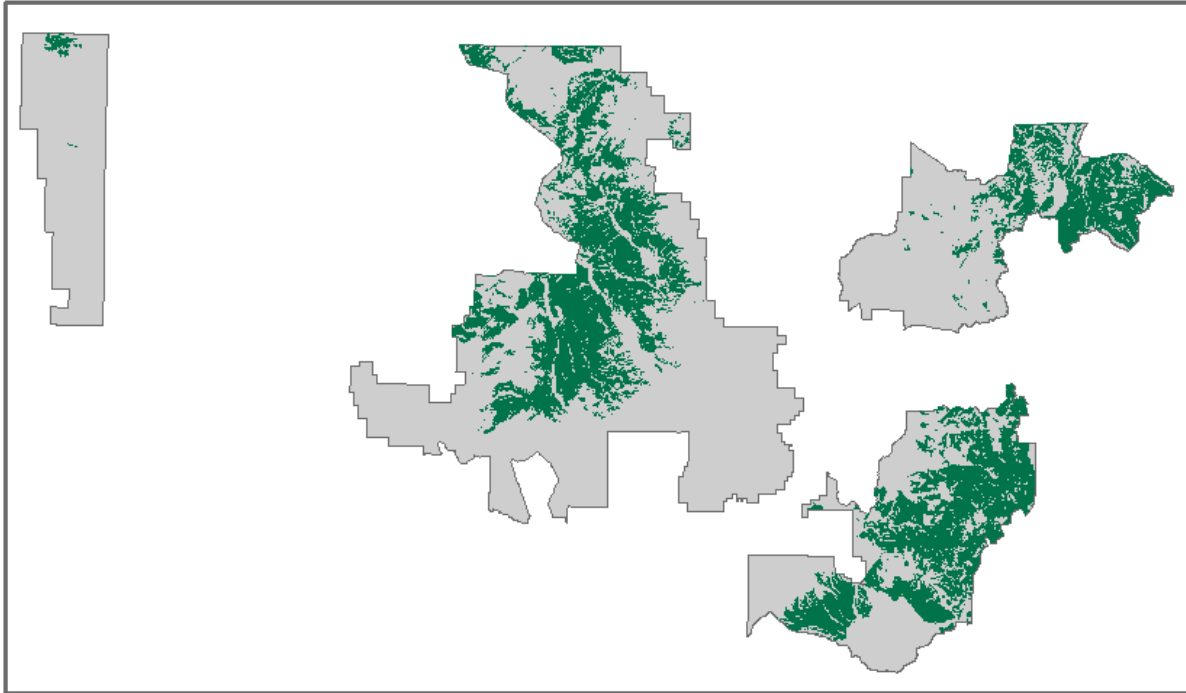
Phase of the Timber Suitability Analysis	Land classification category	Acres
1st	A. Total National Forest System lands in the plan area	1,486,353
1st	B. Lands not suitable for timber production due to legal, technical, or environmental reasons	1,021,003
1st	C. Lands that may be suitable for timber production	465,350
2nd	E. Lands removed because management objectives limit timber harvest	see E-1 to E-3
2nd	E-1. Recommended Wilderness	8,668
2nd	E-2. Eligible Wild and Scenic River – wild classification	6,545
2nd	E-3. Grassland Maintenance Management Area	81
2nd	F. Total lands not suitable for timber production (B+E)	1,045,803
2nd	G. Total lands suitable for timber production (A-F)	440,550



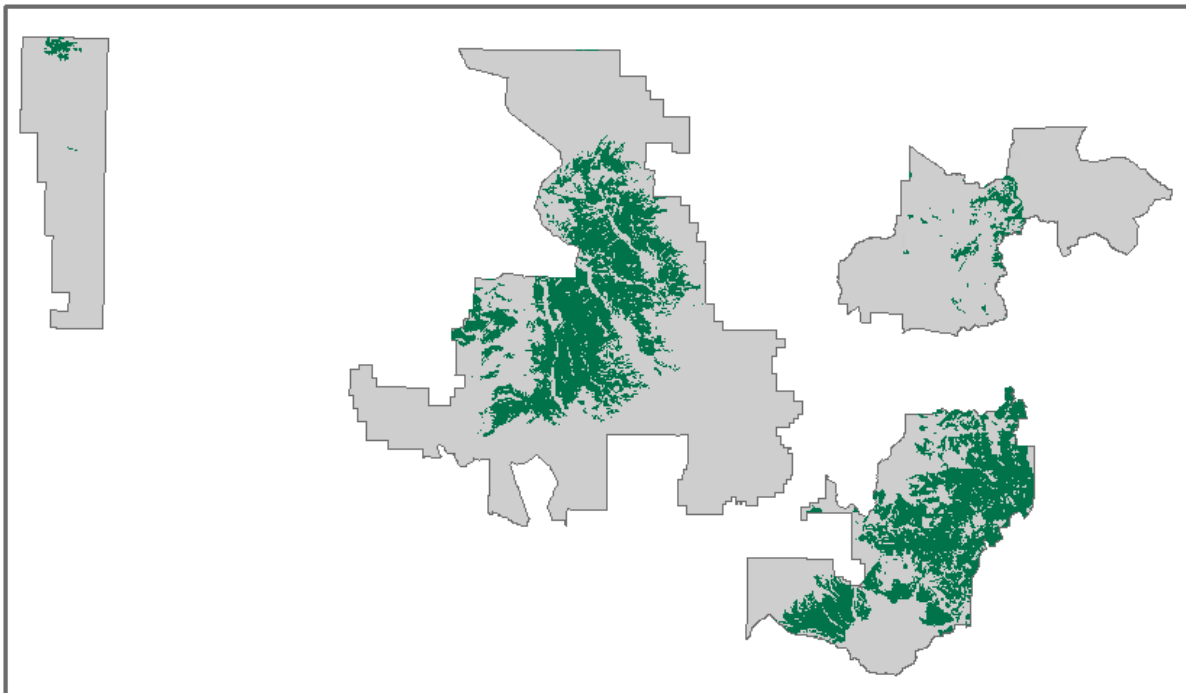
**Figure 40. Areas suitable for timber productions under alternative 1**



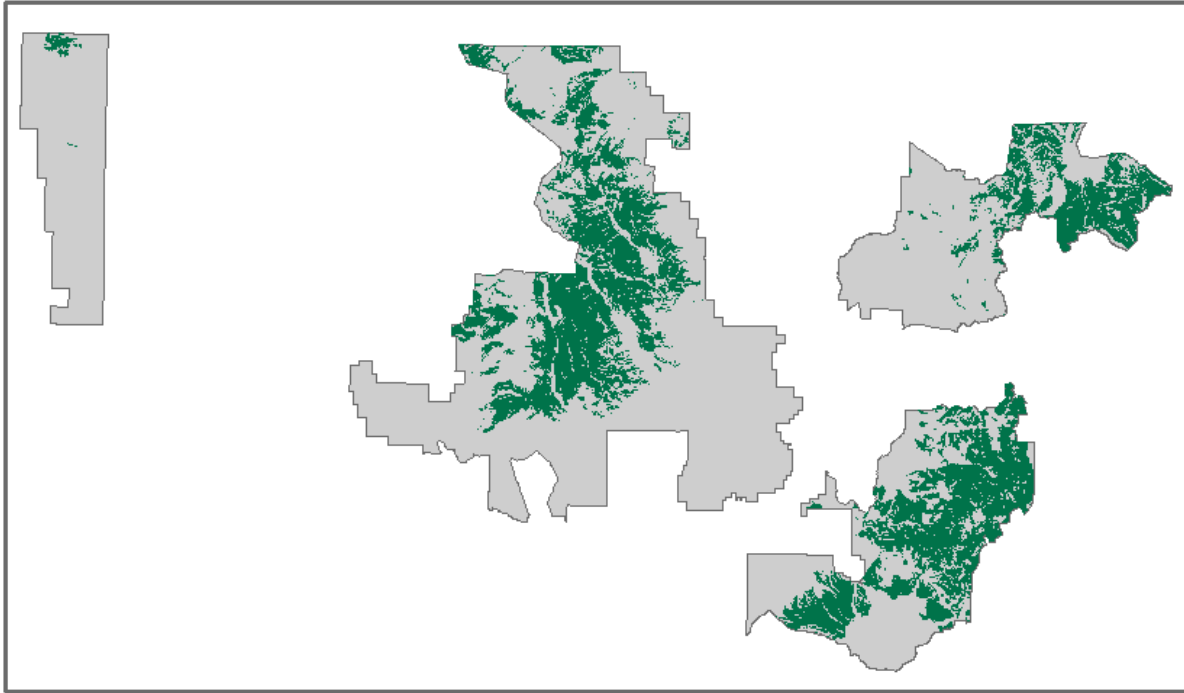
**Figure 41. Areas suitable for timber productions under alternative 2**



**Figure 42. Areas suitable for timber productions under alternative 3**



**Figure 43. Areas suitable for timber productions under alternative 4**



**Figure 44. Areas suitable for timber productions under alternative 5**

## Sustained Yield Limit Analysis

The sustained yield limit is an estimate of the amount of commercial wood products that may be sustainably harvested over a long period. The classification of lands that may be suitable for timber production provides the basis for calculating the sustained yield limit for a national forest<sup>6</sup>. The sustained yield limit should be calculated using vegetation management strategies and assumptions that are appropriate for the forest type and that achieve and maintain a regulated forest condition for lands suitable for timber production based on compatibility with desired conditions and objectives. It is not necessary to select a management strategy that maximizes production, only one that sustains production over the long term. The strategy should take into account basic environmental factors that would affect timber production such as fire risk, insects and disease, soil conditions, and other factors needed to sustain production.

The sustained yield limit assumes that forest vegetation is structured in a desired, fully stocked condition (balance of tree age/structural stages by area) that facilitates repeated, regulated harvesting. In reality, the forest vegetation on most lands is departed from the desired condition, so planners use growth simulation models to estimate sustainable harvest levels. For the purpose of calculating the sustained yield limit, these same management assumptions are applied to those lands not suitable for timber production based on compatibility with desired conditions and objectives, even though regulated forest production is not planned or appropriate on these lands. On lands suitable for timber production, short-term harvest levels would tend to fluctuate until those lands are at a desired, regulated condition and then remain steady around that level. For lands not suitable for timber production based on compatibility with desired conditions and objectives, a regulated forest vegetation condition is not likely to be a desired objective, but the potential sustained yield of these lands is estimated by assuming a regulated condition. See the

<sup>6</sup> 36 CFR 219.11(d)(6) and FSH 1909.12, chapter 60, section 64.31

white paper by Youtz and Vandendriesche (2015) for a more detailed description of these modeling methodologies and outputs.

The following assumptions were used as the basis for the sustained yield limit analysis:

**Sustained yield limit calculations are based upon uneven-aged forest management systems for the following forest vegetation types:**

- Ponderosa pine and its subtypes, ponderosa pine–bunchgrass and ponderosa pine–Gambel oak (assumes management favors dominance of ponderosa pine)
- Mixed conifer–frequent fire (assumes management favors dominance of shade intolerant species)
- Mixed conifer with aspen (assumes management favors dominance of wind-firm species—Douglas-fir, southwestern white pine)
- Lower-elevation spruce-fir (assumes management favors dominance of wind-firm species—Douglas-fir, southwestern white pine)

Uneven-aged management analysis assumptions:

- Group selection cutting method
- A 20- or 30-year cutting cycle, six age classes, group/patch sizes and density increase by vegetation type as forest conditions become progressively more mesic
- Some analysis strategies combine group selection cutting with mid-cycle intermediate thinning
- Target matrix density varies by vegetation type
- In Ponderosa Pine Forest, a site index below 70 is considered low
- Based on Forest Inventory and Analysis Program plot data, 38 of 45 (84 percent) Ponderosa Pine Forest sites on the Carson National Forest have a low site index. The remaining 16 percent are considered high.

**Sustained yield limit calculations are based upon an even-aged forest management system for the following forest vegetation type:**

- Upper-elevation spruce-fir (assumes management favors shade-tolerant species—Engelmann spruce, subalpine fir)

Even-aged management analysis assumptions:

- Establish even-aged regeneration (natural and/or artificial)
- Clearcutting or patch-cutting (with or without reserves)<sup>7</sup>
- Rotation age at or after culmination of mean annual increment

**Analysis Methods:**

- Regionwide Forest Inventory Analysis plot data, sorted by ecological response unit and site index

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<sup>7</sup> Silvics of subalpine fir and Engelmann spruce (susceptibility to windthrow, historic fire regime, etc.) are not suited to uneven-aged management.

- Forest Vegetation Simulator – regionally calibrated for:
  - diameter growth
  - stand density mortality
  - tree senescence mortality
  - seen tree defect
  - merchantable cubic feet volumes (5 inches or larger DBH, 4-inch minimum top diameter inside bark or DIB)
  - merchantable board feet volumes (9 inches or larger DBH, 6-inch minimum top DIB)
  - natural tree regeneration

Forest Vegetation Simulator modeling produced coefficients of sustained timber volume output based on forest type and site index (table 33). The sustained yield limit is calculated by applying those coefficients to the number of acres that may be suitable for timber production on the Carson National Forest. The Carson’s sustained yield limit across all forest types is 42.2 million board feet per year (10.7 million cubic feet per year).

**Table 33. Production coefficients and acres that may be suitable for timber production used to calculate the sustained yield limit for the Carson National Forest (based on Youtz and Vandendriesche 2015)**

<b>Forest Type (Ecological Response Unit)</b>	<b>Uneven-aged yield (per acre/year), board feet (9 inches + dbh)</b>	<b>Uneven-aged yield (per acre/year), cubic feet (5 inches + dbh)</b>	<b>Acres of “may be suitable” timber by Ecological Response Unit</b>
Ponderosa pine/grass (low site index)	75.4	15.5	83,903
Ponderosa pine/grass (high site index – 30-year cut cycle)	115.9	23.6	15,981
Dry mixed conifer (all site index – 30-year cut cycle)	93.8	22.9	143,114
Wet mixed conifer (all site index – 30-year cut cycle)	89.6	24.7	61,995
Spruce-fir (mix) (all site index – 30-year cut cycle)	99.6	27.9	150,614

## Planned Forest Management by Alternative

The projected forest management program varies by plan alternative based on plan objectives for mechanical treatment, the theme of the alternative, and other plan components. Treatment levels in high elevation forests do not vary among alternatives and are based on the current 10 year average (table 34). The distribution of management among treatment types in other vegetation communities is based on the 10 year average of management levels by type with the following additional assumptions (Table 35 to Table 39):

- The total amount of mechanical treatment is the midpoint of the range described by objectives in each alternative

- Alternatives 2 and 3 do not include any treatments with diameter caps.
- 2 percent in alternative 2 and 8 percent in alternative 3 of the total mechanical treatment acres were changed to even aged treatment to allow for insect and disease treatment (F-shelterwood seed cut to target basal area). Shelterwood seed cuts provide more total volume per acre, and are more compatible with the theme of alternative 3.
- Remaining harvest thinning treatment acres in alternatives 2 and 3 were changed to C-thin from below to target basal area. Remaining fuels treatment acres were changed to E-group selection with matrix thin to target basal area.
- There are no objectives for mechanical treatment under alternative 4. Some fuels treatment is still assumed to occur in wildland-urban interface areas. Therefore alternative 4 maintains the current level of recent fuels treatment acres but instead of including them all in M-thin to 9 inch diameter cap (as in alternative 1) those acres are distributed (in the same proportions as alternative 1) among the three thinning treatment types, M-thin to 9 inch diameter cap, D-thin under a 16 inch diameter cap to target basal area, and C-thin from below to target basal area.
- In alternatives 2, 3, and 5 which include the grassland maintenance management area (GMMA) additional treatment acres were added in piñon-juniper vegetation communities (PJO and PJS). Half of the acres in grassland maintenance management areas that are currently treed (states C, D, F, G) were divided evenly across the next 2 decades to be treated by G-clear cut with legacy trees (permanent savanna objective). It is assumed that not every acre in grassland maintenance management areas would be easily treated and that there would be some inclusions of remaining trees. In piñon-juniper woodland this resulted in C: 160 acres (40 treated/decade), D: 1,254 acres (314 treated/decade), F: 531 (133 treated/decade), and G: 6,064 (1,516 treated/decade). In piñon-juniper sagebrush this resulted in C: 8,562 acres (2,141 treated/decade), D: 275 acres (69 treated/decade), F: 2,440 (610 treated/decade), and G: 4,268 (1067 treated/decade).

**Table 34. Annual number of acres of mechanical treatment-by-treatment type in high elevation forest for all alternatives**

Standard Treatments*	Spruce-Fir Forest (acres)	Mixed Conifer with Aspen (acres)
B - free thin, all sizes to target basal area	0	0
C - thin from below to target basal area	0	14
D - thin under a 16 inches diameter cap to target basal area	0	0
E - group selection with matrix thin to target basal area	0	0
F - shelterwood seed cut to target basal area	0	0
G - clearcut with non-regeneration objective legacy trees	0	0
H - clearcut/coppice for hardwood regeneration	0	0
I - planting	0	0
M - thin under a 9 inches diameter cap	0	0

\*From Weisz and Vandendriesche 2011

**Table 35. Annual number of acres of mechanical treatment-by-treatment type in other vegetation communities under alternative 1**

Standard Treatments*	Mixed Conifer with frequent fire (acres)	Ponderosa pine forest (acres)	Piñon-juniper woodland (acres)	Piñon-juniper sagebrush (acres)
B - free thin, all sizes to target basal area	0	0	0	0

<b>Standard Treatments*</b>	<b>Mixed Conifer with frequent fire (acres)</b>	<b>Ponderosa pine forest (acres)</b>	<b>Piñon-juniper woodland (acres)</b>	<b>Piñon-juniper sagebrush (acres)</b>
C - thin from below to target basal area	56	87	167	0
D - thin under a 16 inches diameter cap to target basal area	5	10	0	0
E - group selection with matrix thin to target basal area	12	244	0	0
F - shelterwood seed cut to target basal area	0	0	0	0
G - clearcut with non-regeneration objective legacy trees	0	0	0	0
H - clearcut/coppice for hardwood regeneration	0	0	0	0
I - planting	33	259	0	0
M - thin under a 9 inches diameter cap	360	602	0	0

\*From Weisz and Vandendriesche 2011

**Table 36. Annual number of acres of mechanical treatment-by-treatment type in other vegetation communities under alternative 2**

<b>Standard Treatments*</b>	<b>Mixed Conifer with frequent fire (acres)</b>	<b>Ponderosa pine forest (acres)</b>	<b>Piñon-juniper woodland (acres)</b>	<b>Piñon-juniper sagebrush (acres)</b>
B - free thin, all sizes to target basal area	0	0	0	0
C - thin from below to target basal area	124	442	167	0
D - thin under a 16 inches diameter cap to target basal area	0	0	0	0
E - group selection with matrix thin to target basal area	635	3,118	0	0
F - shelterwood seed cut to target basal area	16	72	0	0
G - clearcut with non-regeneration objective legacy trees	0	0	200	389
H - clearcut/coppice for hardwood regeneration	0	0	0	0
I - planting	33	259	0	0
M - thin under a 9 inches diameter cap	0	0	0	0

\*From Weisz and Vandendriesche 2011

**Table 37. Annual number of acres of mechanical treatment-by-treatment type in other vegetation communities under alternative 3**

<b>Standard Treatments*</b>	<b>Mixed Conifer with frequent fire (acres)</b>	<b>Ponderosa pine forest (acres)</b>	<b>Piñon-juniper woodland (acres)</b>	<b>Piñon-juniper sagebrush (acres)</b>
B - free thin, all sizes to target basal area	0	0	0	0
C - thin from below to target basal area	339	864	167	0
D - thin under a 16 inches diameter cap to target basal area	0	0	0	0

<b>Standard Treatments*</b>	<b>Mixed Conifer with frequent fire (acres)</b>	<b>Ponderosa pine forest (acres)</b>	<b>Piñon-juniper woodland (acres)</b>	<b>Piñon-juniper sagebrush (acres)</b>
E - group selection with matrix thin to target basal area	1,729	6,098	0	0
F - shelterwood seed cut to target basal area	180	600	0	0
G - clearcut with non-regeneration objective legacy trees	0	0	200	389
H - clearcut/coppice for hardwood regeneration	0	0	0	0
I - planting	33	259	0	0
M - thin under a 9 inches diameter cap	0	0	0	0

\*From Weisz and Vandendriesche 2011

**Table 38. Annual number of acres of mechanical treatment-by-treatment type in other vegetation communities under alternative 4**

<b>Standard Treatments*</b>	<b>Mixed Conifer with frequent fire (acres)</b>	<b>Ponderosa pine forest (acres)</b>	<b>Piñon-juniper woodland (acres)</b>	<b>Piñon-juniper sagebrush (acres)</b>
B - free thin, all sizes to target basal area	0	0	0	0
C - thin from below to target basal area	274	432	167	0
D - thin under a 16 inches diameter cap to target basal area	25	50	0	0
E - group selection with matrix thin to target basal area	0	0	0	0
F - shelterwood seed cut to target basal area	0	0	0	0
G - clearcut with non-regeneration objective legacy trees	0	0	0	0
H - clearcut/coppice for hardwood regeneration	0	0	0	0
I - planting	33	259	0	0
M - thin under a 9 inches diameter cap	49	99	0	0

\*From Weisz and Vandendriesche 2011

**Table 39. Annual number of acres of mechanical treatment-by-treatment type in other vegetation communities under alternative 5**

<b>Standard Treatments*</b>	<b>Mixed Conifer with frequent fire (acres)</b>	<b>Ponderosa pine forest (acres)</b>	<b>Piñon-juniper woodland (acres)</b>	<b>Piñon-juniper sagebrush (acres)</b>
B - free thin, all sizes to target basal area	0	0	0	0
C - thin from below to target basal area	124	442	167	0
D - thin under a 16 inches diameter cap to target basal area	0	0	0	0
E - group selection with matrix thin to target basal area	635	3,118	0	0
F - shelterwood seed cut to target basal area	16	72	0	0

<b>Standard Treatments*</b>	<b>Mixed Conifer with frequent fire (acres)</b>	<b>Ponderosa pine forest (acres)</b>	<b>Piñon-juniper woodland (acres)</b>	<b>Piñon-juniper sagebrush (acres)</b>
G - clearcut with non-regeneration objective legacy trees	0	0	200	389
H - clearcut/coppice for hardwood regeneration	0	0	0	0
I - planting	33	259	0	0
M - thin under a 9 inches diameter cap	0	0	0	0

\*From Weisz and Vandendriesche 2011

Table 40 summarizes the average annual vegetation management practices, forest-wide across all vegetation communities. These acreages do not represent a commitment to action and all future vegetation management must account for other resource impacts as required by the forest plan and be within the fiscal capability of the Carson National Forest. Revisions to the forest plan (and to the vegetation management practices within) are expected to be conducted every 15 years. As such, all numbers presented below are valid for approximately the next two decades.

The existing forest plan did not contain specific plan components for forest-wide vegetation management. As a result, the average of treatments that have occurred over the past decade were used to estimate treatment amounts under alternative 1 (no action). There is one additional acre included in the opening maintenance treatment total from treatments occurring in the montane-subalpine and sagebrush shrubland vegetation communities.

**Table 40. Average annual acres forestwide by vegetation management type**

<b>Forest Cover Type and Vegetation Management Practice</b>	<b>Alt. 1 annual average acres</b>	<b>Alt. 2 annual average acres</b>	<b>Alt. 3 annual average acres</b>	<b>Alt. 4 annual average acres</b>	<b>Alt. 5 annual average acres</b>
Even Aged Opening Maintenance Treatments <sup>1</sup>	237	826	826	237	826
Mechanical Treatments	1	590	590	1	590
Fire (Prescribed and Natural Ignitions)	236	236	236	236	236
Ponderosa Pine Treatments	2,060	13,879	17,809	14,326	13,879
Uneven Aged Management	825	3,632	7,562	581	3,632
Fire (Prescribed and Natural Ignitions)	1,234	10,247	10,247	13,745	10,247
Mixed Conifer – Frequent Fire Treatments	549	3,799	5,272	4,127	3,799
Uneven Aged Management	434	775	2,248	348	775
Fire (Prescribed and Natural Ignitions)	115	3024	3024	3779	3024
Other Treatments <sup>2</sup>	214	473	770	181	770
Total Treatments	3,060	18,977	24,677	18,871	19,274
Mechanical Treatments	1,260	4,997	10,400	930	4,997
Fire (Prescribed and Natural Ignitions)	1,586	13,507	13,507	17,760	13,507
Other Treatments	214	473	770	181	770

1. Even aged treatments to maintain openings primarily occur in piñon-juniper woodland and piñon-juniper sagebrush vegetation communities.

2. Other treatments include tree planting and thinning in woodlands or spruce-fir forests for restoration or fuels treatment.

## Timber and Other Wood Product Sale Quantity by Alternative

Projected wood product output (including commercial timber) varies by alternative (table 41 through table 50). Estimates are based on Vegetation Dynamics Development Tool modeling outputs (Appendix C – Description of the Vegetation Modeling Process) and regionally developed coefficients that relate acres treated to volume outputs by state class, treatment type, and vegetation community, also referred to as the ecological response unit (USDA Forest Service Southwest Region 2018). These estimates for output volumes are from the cutting of live trees only. Dead and down fuelwood volumes are not included. Dead and down fuelwood volume in this environmental analysis is assumed constant, and is based on the recent average volume removed (869,552 cubic feet per decade). That volume may vary in the future but is based on the number of permits purchased by the public, not on decisions made by the Carson National Forest. Total fuelwood volume by alternative (dead and down plus green fuelwood) is summarized in the total fuelwood volume per decade by alternative (table 51) includes a constant estimate of dead and down fuelwood (0.9 mmcf) plus projected green fuelwood (5.9 inches industrial roundwood, 5 inches+ other non-industrial softwood fuelwood, and hardwood fuelwood).

**Table 41. Projected harvest levels of timber products under alternative 1 (volumes other than salvage or sanitation that meet timber product utilization standards)**

Timber Products	MMCF First Decade	MMBF First Decade	Tons First Decade	MMCF Second Decade	MMBF Second Decade	Tons Second Decade
Lands suitable for timber production A1. Sawtimber (industrial softwoods, 9"+)	1.0	4.4	15,273	1.6	7.3	23,883
Lands suitable for timber production A2. Other Products (industrial softwood, 5-9" – roundwood, commonly pulpwood, mostly in the form of fuelwood)	0.4	not applicable	59,261	0.4	not applicable	47,450
Lands not suitable for timber production B1. Sawtimber (9"+)	2.0	9.1	30,971	2.9	13.0	43,929
Lands not suitable for timber production B2. Other Products (5-9")	0.7	not applicable	102,385	0.8	not applicable	83,367
C. Projected Timber Sale Quantity (PTSQ) (A1+A2+B1+B2)	4.1	13.5	207,890	5.8	20.3	198,630

**Table 42. Harvest levels of other estimated wood products under alternative 1 (fuelwood, biomass, and other volumes that do not meet timber product utilization standards)**

Estimated Wood Products	MMCF First Decade	Tons First Decade	MMCF Second Decade	Tons Second Decade
D1. Non-industrial softwood fuelwood (5"+)	5.3	1.5	5.4	1.5
D2. Hardwood fuelwood (5"+)	0.3	0.1	0.3	0.1
D3. Aspen (5"+)	0.1	0.0	0.2	0.0
E. Projected Wood Sale Quantity (PWSQ) (C+D1+D2+D3)	9.8	207,892	11.6	198,632

**Table 43. Projected harvest levels of timber products under alternative 2 (volumes other than salvage or sanitation that meet timber product utilization standards)**

<b>Timber Products</b>	<b>MMCF First Decade</b>	<b>MMBF First Decade</b>	<b>Tons First Decade</b>	<b>MMCF Second Decade</b>	<b>MMBF Second Decade</b>	<b>Tons Second Decade</b>
Lands suitable for timber production A1. Sawtimber (industrial softwoods, 9"+)	12.9	60.3	192,729	13.3	64.6	196,476
Lands suitable for timber production A2. Other Products (industrial softwood, 5-9" – roundwood, commonly pulpwood, mostly in the form of fuelwood)	2.4	not applicable	102,519	2.1	not applicable	82,378
Lands not suitable for timber production B1. Sawtimber (9"+)	20.8	98.1	311,883	22.9	113.2	33,8618
Lands not suitable for timber production B2. Other Products (5-9")	4.1	not applicable	13,6559	3.6	not applicable	11,2010
C. Projected Timber Sale Quantity (PTSQ) (A1+A2+B1+B2)	40.1	158.5	743,689	41.9	177.8	729,482

**Table 44. Harvest levels of other estimated wood products under alternative 2 (fuelwood, biomass, and other volumes that do not meet timber product utilization standards)**

<b>Estimated Wood Products</b>	<b>MMCF First Decade</b>	<b>Tons First Decade</b>	<b>MMCF Second Decade</b>	<b>Tons Second Decade</b>
D1. Non-industrial softwood fuelwood (5"+)	5.9	1.6	6.5	1.8
D2. Hardwood fuelwood (5"+)	1.1	0.4	1.0	0.4
D3. Aspen (5"+)	0.7	0.2	0.6	0.1
E. Projected Wood Sale Quantity (PWSQ) (C+D1+D2+D3)	47.8	743,692	50.0	729,484

**Table 45. Projected harvest levels of timber products under alternative 3 (volumes other than salvage or sanitation that meet timber product utilization standards)**

<b>Timber Products</b>	<b>MMCF First Decade</b>	<b>MMBF First Decade</b>	<b>Tons First Decade</b>	<b>MMCF Second Decade</b>	<b>MMBF Second Decade</b>	<b>Tons Second Decade</b>
Lands suitable for timber production A1. Sawtimber (industrial softwoods, 9"+)	36.4	170.7	544,950	24.2	115.6	358,854
Lands suitable for timber production A2. Other Products (industrial softwood, 5-9" – roundwood, commonly pulpwood, mostly in the form of fuelwood)	6.3	not applicable	162,195	3.8	not applicable	108,996
Lands not suitable for timber production B1. Sawtimber (9"+)	51.4	247.0	769,052	28.3	139.0	417,980
Lands not suitable for timber production B2. Other Products (5-9")	9.2	not applicable	210,073	5.0	not applicable	132,263
C. Projected Timber Sale Quantity (PTSQ) (A1+A2+B1+B2)	103.4	417.7	1,686,271	61.2	254.7	1,018,092

**Table 46. Harvest levels of other estimated wood products under alternative 3 (fuelwood, biomass, and other volumes that do not meet timber product utilization standards)**

Estimated Wood Products	MMCF First Decade	Tons First Decade	MMCF Second Decade	Tons Second Decade
D1. Non-industrial softwood fuelwood (5"+)	7.7	2.1	7.0	1.9
D2. Hardwood fuelwood (5"+)	3.4	1.3	1.6	0.6
D3. Aspen (5"+)	3.0	0.7	2.1	0.5
E. Projected Wood Sale Quantity (PWSQ) (C+D1+D2+D3)	117.6	1,686,275	72.0	1,018,095

**Table 47. Projected harvest levels of timber products under alternative 4 (volumes other than salvage or sanitation that meet timber product utilization standards)**

Timber Products	MMCF First Decade	MMBF First Decade	Tons First Decade	MMCF Second Decade	MMBF Second Decade	Tons Second Decade
Lands suitable for timber production A1. Sawtimber (industrial softwoods, 9"+)	1.6	7.2	24,546	1.8	8.4	26,413
Lands suitable for timber production A2. Other Products (industrial softwood, 5-9" – roundwood, commonly pulpwood, mostly in the form of fuelwood)	0.4	not applicable	57,155	0.3	not applicable	44,116
Lands not suitable for timber production B1. Sawtimber (9"+)	2.4	10.8	36,389	2.2	10.2	33,229
Lands not suitable for timber production B2. Other Products (5-9")	0.8	not applicable	106,493	0.7	not applicable	83,231
C. Projected Timber Sale Quantity (PTSQ) (A1+A2+B1+B2)	5.2	18.0	224,582	5.0	18.5	186,988

**Table 48. Harvest levels of other estimated wood products under alternative 4 (fuelwood, biomass, and other volumes that do not meet timber product utilization standards)**

Estimated Wood Products	MMCF First Decade	Tons First Decade	MMCF Second Decade	Tons Second Decade
D1. Non-industrial softwood fuelwood (5"+)	1.8	0.5	2.3	0.6
D2. Hardwood fuelwood (5"+)	0.3	0.1	0.2	0.1
D3. Aspen (5"+)	0.4	0.1	0.2	0.1
E. Projected Wood Sale Quantity (PWSQ) (C+D1+D2+D3)	7.6	224,583	7.8	186,989

**Table 49. Projected harvest levels of timber products under alternative 5 (volumes other than salvage or sanitation that meet timber product utilization standards)**

Timber Products	MMCF First Decade	MMBF First Decade	Tons First Decade	MMCF Second Decade	MMBF Second Decade	Tons Second Decade
Lands suitable for timber production A1. Sawtimber (industrial softwoods, 9"+)	12.6	59.0	188,639	13.0	63.3	192,584
Lands suitable for timber production A2. Other Products (industrial softwood, 5-9" – roundwood, commonly pulpwood, mostly in the form of fuelwood)	2.3	not applicable	101,333	2.0	not applicable	81,401

Timber Products	MMCF First Decade	MMBF First Decade	Tons First Decade	MMCF Second Decade	MMBF Second Decade	Tons Second Decade
Lands not suitable for timber production B1. Sawtimber (9"+)	21.1	99.4	315,973	23.2	114.5	342,511
Lands not suitable for timber production B2. Other Products (5-9")	4.1	not applicable	137,745	3.7	not applicable	112,987
C. Projected Timber Sale Quantity (PTSQ) (A1+A2+B1+B2)	40.1	158.5	743,689	41.9	177.8	729,482

**Table 50. Harvest levels of other estimated wood products under alternative 5 (fuelwood, biomass, and other volumes that do not meet timber product utilization standards)**

Estimated Wood Products	MMCF First Decade	Tons First Decade	MMCF Second Decade	Tons Second Decade
D1. Non-industrial softwood fuelwood (5"+)	5.9	1.6	6.5	1.8
D2. Hardwood fuelwood (5"+)	1.1	0.4	1.0	0.4
D3. Aspen (5"+)	0.7	0.2	0.6	0.1
E. Projected Wood Sale Quantity (PWSQ) (C+D1+D2+D3)	47.8	743,692	50.0	729,484

The total fuelwood volume per decade by alternative (table 51) includes a constant estimate of dead and down fuelwood (0.9 MMCF) plus projected green fuelwood (5.9 inches industrial roundwood, 5 inches+ other non-industrial softwood fuelwood, and hardwood fuelwood).

**Table 51. Total fuelwood volume per decade by alternative**

Alternative	Fuelwood (MMCF/decade)
1	1.55
2	2.24
3	3.56
4	1.21
5	2.24

## References

- USDA Forest Service Southwest Region (United States Department of Agriculture – Forest Service, Southwest Region). 2018. Eco Analysis Tool. Spreadsheet on file at Forest Service Southwest Regional Office.
- Weisz, R. and D. Vandendriesche. 2011. Use of the Forest Vegetation Simulator to Quantify Disturbance Activities in State and Transition Models. PNW-GTR-869. Proceedings of the First Landscape State-and-Transition Simulation Modeling Conference, June 14–16, 2011.
- Youtz, J.A. and D. Vandendriesche. 2015. Overview of the Planning Requirements for Timber Suitability and associated NFMA timber calculations per the 2012 Planning Rule (36 CFR 219. 11) and Directives (FSH 1909.12, Chapter 60). USDA Forest Service, Southwestern Region, Albuquerque, NM.

The final environmental impact statement will include **Appendix E – Public Engagement Process and Coordination with Other Public Planning Efforts.**

# Appendix F – Wilderness Process

## Wilderness Recommendation Process

The 2012 planning rule requires each national forest to identify and evaluate lands that may be suitable for inclusion in the National Wilderness Preservation System and to determine whether to recommend any such lands for wilderness designation (36 CFR 219.7 (c) (2). Forest Service directives (FSH 1909.12, Chapter 70) for implementing the 2012 Planning Rule provide further guidance on how to complete this process in four steps:

### Step 1: Inventory

The [inventory](#) step efficiently, effectively, and transparently identifies all lands in the Carson National Forest that may have wilderness characteristics. This step primarily looks at the size, roads, and other improvements found within landscapes, to determine if an area should be carried forward to the evaluation step. Only those lands that meet the required criteria (FSH1909.12, Chapter 70, section 71.2) are carried forward.

### Step 2: Evaluation

The [evaluation](#) step looks at the lands that were brought forward from inventory and evaluates them based on the five wilderness characteristics (FSH 1909.12, chapter 70, section 72.1) as defined in the [Wilderness Act of 1964](#).

### Step 3: Analysis

The analysis step identifies the effects any recommended wilderness would have on the ecological, social, and economic landscape. The results of the analysis help inform the determination of which lands may be carried forward for final Recommendation. The draft forest plan and alternatives incorporate some, none, or all of the lands from evaluation, depending on the theme of the alternative. The environmental impact statement documents the analysis of anticipated effects, if lands were to be managed as wilderness, under the proposed forest plan and each alternative.

### Step 4: Recommendation

A wilderness Recommendation may be proposed as part of the draft forest plan and alternatives to the draft plan. The final Recommendation step makes a recommendation for specific areas to be included in the National Wilderness Preservation System as part of the final Record of Decision in the forest plan revision process. Note that only Congress can create new wilderness areas. This final recommendation is just that, a recommendation.

The Carson National Forest has completed the inventory, evaluation, and draft analysis steps. The methods for the first two steps and results are described in two sections in this document. The first section provides information about the inventory process and results. The second section provides an area by area evaluation of wilderness characteristics of inventoried lands. The forest has incorporated none, some, or all of the areas brought forward into the evaluation step into the draft forest plan and alternatives, depending on the theme of the alternatives. These have been analyzed within the Draft Environmental Impact Statement.

## Public Involvement for the Wilderness Recommendation Process

The Carson National Forest held three public meetings in January 2016 to introduce the wilderness recommendation process and present proposed inventory criteria. Meetings were held from 6 to 8 p.m. in Tierra Amarilla, Taos, and Mora, New Mexico. The forest solicited public feedback on two questions: (1) Was the list of proposed criteria appropriate and were they being applied appropriately? and (2) What does wilderness mean to you or how do you feel about wilderness? These questions were also posted on the forest's website for two weeks to allow comment from a wider audience. The responses to these questions were consolidated and published as a report that is available on the Carson National Forest's website. Many comments were more appropriate to the later evaluation or analysis steps, and have been addressed there. Some comments had to do with opening or closing roads, which is not a decision to be made through the wilderness recommendation process. Most comments related to the proposed inventory criteria and process had to do with the need to exclude additional improvements such as acequias, trick tanks, corrals, etc. It was determined that these improvements would be better addressed during the evaluation and analysis steps, as removing them from inventory had little impact on the resulting map.

The criteria were applied to develop a draft inventory map which was released to the public on January 26, 2016. The map was made available for comment online through the Carson National Forest, Forest Plan Revision website, and also as a hardcopy at each Carson National Forest ranger district office. Comments on the criteria, how they were applied, and whether any excluded areas should be re-added to the inventory and taken into the evaluation step were accepted for 30 days. Comments could be given through an online interactive map, by email, by mail, or in person at any ranger district office. Comments that related to a specific inventory polygon were responded to. Those comments and responses, as well as all other comments received, are published on the Carson National Forest, Forest Plan Revision website. As a result of public comments, seven polygons totaling 15,303 acres were re-added to the inventory, because they were either adjacent to lands administered by the USDI Bureau of Land Management and managed to protect wilderness characteristics, or adjacent to lands on the Rio Grande National Forest that may be inventoried as part of its wilderness process.

A final inventory map was released to the public on February 29, 2016. Six public meetings were held in April and May 2016 to present the map, explain the evaluation step to follow, and solicit feedback on the proposed evaluation process and evaluation considerations. Meetings were from 6-8 p.m. in Abiquiu, Amalia, Taos, and Peñasco, New Mexico, and Manassa, Colorado. A second meeting was held in Abiquiu, New Mexico. The forest presented a general overview of the wilderness process and, in particular, the evaluation step, explained the five wilderness characteristics to be evaluated, and presented proposed attributes of an area that would be considered when conducting the evaluation. The public was asked to provide feedback on the proposed considerations for evaluating wilderness characteristics and then to apply the considerations to specific inventory polygons. All public comments for inventory and evaluation steps were compiled and are available on the Carson National Forest, Forest Plan Revision website.

Based on public feedback, some of the considerations for evaluating wilderness characteristics were clarified. These considerations were used to evaluate wilderness characteristics for each inventoried area. A preliminary evaluation was released for public review on June 15, 2016, and included a draft map of areas evaluated as having wilderness characteristics and the corresponding summary reports for each inventoried area. The map and documentation were made available online and as a paper copy at each Carson National Forest ranger district office. The public was able to provide comment online, via email, via mail, or in person at any ranger district office. On June 15, 2016, the Carson National Forest held a meeting in Taos for elected officials and discussed the wilderness process, the evaluation map, and the

general forest plan revision timeline. In addition, the Carson National Forest planning team attended several meetings to present the wilderness process, explain the evaluation process, present the draft evaluation results, and assist attendees with providing comments. These meetings included a meeting hosted by the New Mexico Department of Agriculture (Abiquiu 6/21/2016), in which all permittees with grazing allotments that overlapped an evaluation area were invited. On June 29, 2016, Rivers and Birds hosted a meeting in Taos, in which representatives of special interest groups and some unaffiliated members of the public were invited. The New Mexico Land Grant Council hosted a meeting in Cebolla on July 12, 2016, for all land grant heirs with interest in any of the areas that were evaluated as having wilderness characteristics. Representatives from the Carson National Forest attended the Land Grant Consejo meeting on June 4, 2016, in Tierra Amarilla to present and discuss wilderness, and presented before the Interim Land Grant Legislative Committee on July 12, 2016, in Peñasco. As a result of public comments and more accurate on-the-ground information, four evaluation area's names were changed and 25,789 acres were reevaluated for wilderness characteristics after the preliminary evaluation.

Since 2016, the draft wilderness evaluation document was posted on the plan revision web page and hard copies were placed at each district offices for the public to review and provide feedback. A preliminary draft forest plan was posted in July 2017 and an updated version which incorporated public feedback was posted again in December 2017. The forest also spent time meeting with groups or individuals who requested a meeting, which included the Northern New Mexico Stockmen's Association, The Wilderness Society, land grants, acequias and tribes, to discuss wilderness and other plan revision comments.

In August 2017 the Carson National Forest held four placed-based meetings to discuss potential management areas in four areas, which included recommended wilderness, around the national forest that were of special interest to local communities, land grants, tribes, recreation users, and conservation groups. The meetings were a way for Carson National Forest personnel to hear collectively from these users but also for them to hear from each other how they value and use the forest.

The Carson National Forest held monthly open houses beginning in August 2016 to allow the public to speak with and ask questions of the national forest personnel on the many documents, including wilderness being developed as part of the draft forest plan and draft environmental impact statement.

## **Tribal Engagement for the Wilderness Recommendation Process**

Involvement with federally recognized Tribes has been ongoing. A letter announcing the initiation of the Wilderness Recommendation Process and the first set of meetings was sent to the 17 tribes with an interest in the Carson National Forest. A letter explaining the evaluation step and a copy of the draft evaluation map was sent to each tribe following its release. Representatives from the Carson National Forest attended the Regional Forester's Tribal Consultation meeting on June 14, 2016, in which wilderness was a topic of discussion. The forest planner and forest archeologist/tribal representative met with the Jemez Pueblo on June 28, 2016, Picuris Pueblo on July 18, 2016, Taos Pueblo on July 27, 2016 to discuss the Wilderness Recommendation Process and the draft evaluation results.

The forest held a tribal roundtable session in April 2017, inviting 16 tribes who have expressed interest in the cultural, spiritual, and historical importance of the Carson National Forest lands. The roundtable sessions were developed to allow the tribal partners to talk with forest leadership about what they wanted from forest management, including recommended wilderness, what things they thought worked well, and how we could go forward collectively as we develop and implement the new plan. The Carson National Forest also participated in two Regional tribal roundtables held by the Southwest Regional Forester. These discussions brought together all of the national forests in New Mexico to discuss, learn, and collaborate with tribes around forest plan revision, including recommended wilderness.

Since 2017, to better hear from the tribes, the Carson National Forest participated with several tribes (Taos Pueblo, Ohkay Owingeh, Picuris Pueblo, Santa Clara Pueblo, and the Jicarilla Apache Nation) quarterly to discuss current issues and potential projects. These quarterly discussions also included updates and information sharing around the plan revision process, including recommended wilderness.

## Inventory

Inventory is the first step in the Wilderness Recommendation Process. It identifies which lands to be evaluated for wilderness characteristics by using criteria. The criteria help to determine which lands should move forward in the process, or which already have certain conditions that do not make them viable for further consideration. During inventory, any private land within the national forest boundary was not included for consideration and existing designated wilderness areas were also removed from further consideration. Generally, the inventory criteria are based on the size of the parcel, if the landscape has open roads, and the types of improvements (such as structures) found within the landscape. The inventory step also takes into account how substantially noticeable these improvements are.

The Carson National Forest started the inventory step using the definitions and requirements found in the directives for recommending wilderness during forest plan revision (FSH 1909.12, 71.2). After developing the draft criteria using directive guidance, the national forest staff asked the public to help confirm the criteria or make changes or adjustments to the criteria. The inventory criteria were finalized after internal review and input from the public. The criteria used to create the inventory for the Carson National Forest are:

**Size:** Blocks of land must be 5,000 acres or larger to be included in the inventory. Smaller areas were added back into the inventory if:

- they are adjacent to an existing wilderness, or other lands that are being managed to preserve their primitive character, or
- they are of sufficient size and geography that they may be effectively preserved, used, and managed in an unimpaired condition.

**Roads:** Roads open to motor vehicle use, based on the most recent motor vehicle use maps were removed from the inventory. To capture the actual influence of roads, all open roads identified on the motor vehicle use maps were buffered by a minimum of 100 feet on either side. Some roads identified on the motor vehicle use maps have either 150 or 300 foot corridors for the purpose of dispersed camping and big game retrieval. Where those corridors exist, the buffer was extended to match that distance delineated on the motor vehicle use maps. Sixteen permitted roads that are not open to the public, but are permitted for administrative, maintenance, or other uses were also buffered by 100 feet and removed from further consideration.

**Improvements:** Only those improvements that are not substantially noticeable in the area as a whole were included in the inventory. The Carson National Forest defined substantially noticeable to mean the improvements are visually apparent on aerial photographs at a scale of one inch to one mile. The list below includes improvements that were considered substantially noticeable and were removed from the inventory.

- Surfaced runways or landing pads with permanent structures. None exist on the Carson National Forest.
- Clearcut forested areas larger than 10 acres (e.g., regeneration harvest areas, unshaded fuelbreaks, and piñon-juniper chaining).

- Complexes of vertical structures over 20 feet tall that: (1) require regular access for maintenance; (2) have associated ground disturbance that is one acre or greater; and (3) occur in a complex with a density of 3 or more per 500 acres. The entire complex-affected area was removed from inventory. This resulted in one single tower complex removed from further consideration.
- Water developments with windmills that are over 20 feet tall that: (1) have associated ground disturbance of one acre or greater and (2) occur in a complex with a density of 3 or more per 500 acres. On the Carson National Forest, no windmills occur in a complex of 3 or more; therefore, none were removed.
- Complexes of gas extraction wells that occur in a complex with a density of 3 or more per 500 acres were considered. Again, the entire complex-affected area was removed from inventory. Some areas on the Jicarilla Ranger District met this complex criterion and were removed from further consideration.
- Open pit mines were considered. None exist on the Carson National Forest.
- Recreation areas were considered. Recreation management areas (e.g. ski areas and developed campgrounds), as defined by the current forest plan, were removed from further consideration.
- Powerlines and pipelines with a cleared corridor were considered. No known above-ground pipelines greater than 6 inches occur on the Carson National Forest. A 100-foot corridor was applied to powerlines with a visible corridor on aerial photos and these areas were removed from further consideration.
- Structures that occur as a complex were considered. Structures were defined as a building that is mapped in the Carson National Forest's GIS database. A complex of structures was defined as 3 or more per 25 acres. The entire complex-affected area was removed from inventory. Twenty complexes of buildings were removed from further consideration.
- Railroads were considered. One railroad crosses the Carson National Forest. It was buffered by 100 feet and the buffered area was removed from further consideration.
- Dams were considered. One concrete dam occurs on the Carson National Forest. The footprint of the dam was removed from further consideration.

Once the above criteria were applied and areas removed, acreages were calculated for each of the remaining areas and any that were smaller than 5,000 acres were reviewed to see if these areas were geographically manageable to preserve primitive character. Inventory areas that were smaller than 5,000 acres, but larger than one acre and adjacent to an existing designated wilderness, wilderness study areas, national monuments, or other similarly protected lands were added back in, as these areas could possibly be managed in an unimpaired condition to preserve primitive character. All other inventory areas that were smaller than 5,000 acres but were not adjacent to existing wilderness or similarly protected lands were removed from the inventory. These areas were found to have little topographic definition to be able to manage in an unimpaired condition as these areas were surrounded by existing open roads or private land and were in impaired condition due adjacent activities and accessibility. This resulted in 88 discrete areas totaling 880,594 acres that would be carried into the evaluation step. Each of these areas were labeled with their inventory numbers as a way of referencing each area throughout the process.

Seven areas were re-added to the inventory, based on feedback from the public and better site specific information. Reasons for re-adding areas were either the area was adjacent to Bureau of Land Management lands that may be managed to protect wilderness character or adjacent to lands on the Rio Grande National Forest that may be inventoried as part of its Wilderness Recommendation Process. A total of 15,303 acres were added back into the inventory between draft and final. The final inventory was 895,897 acres. Some of the comments received during the preliminary inventory were related to areas that

were already included in the inventory. Some comments were more appropriate for evaluation and were carried forward and used to inform the evaluation step.

## Inventory Results

The Carson National Forest is made up of the Questa, Camino Real, Tres Piedras, El Rito, Canjilon, and Jicarilla ranger districts. Their locations are shown on the map below (figure 45). About 60 percent (895,897 acres) of the Carson National Forest was included in the inventory. Table 52 and figure 46 through figure 49 show lands included in the inventory and the ranger district on which they are located.

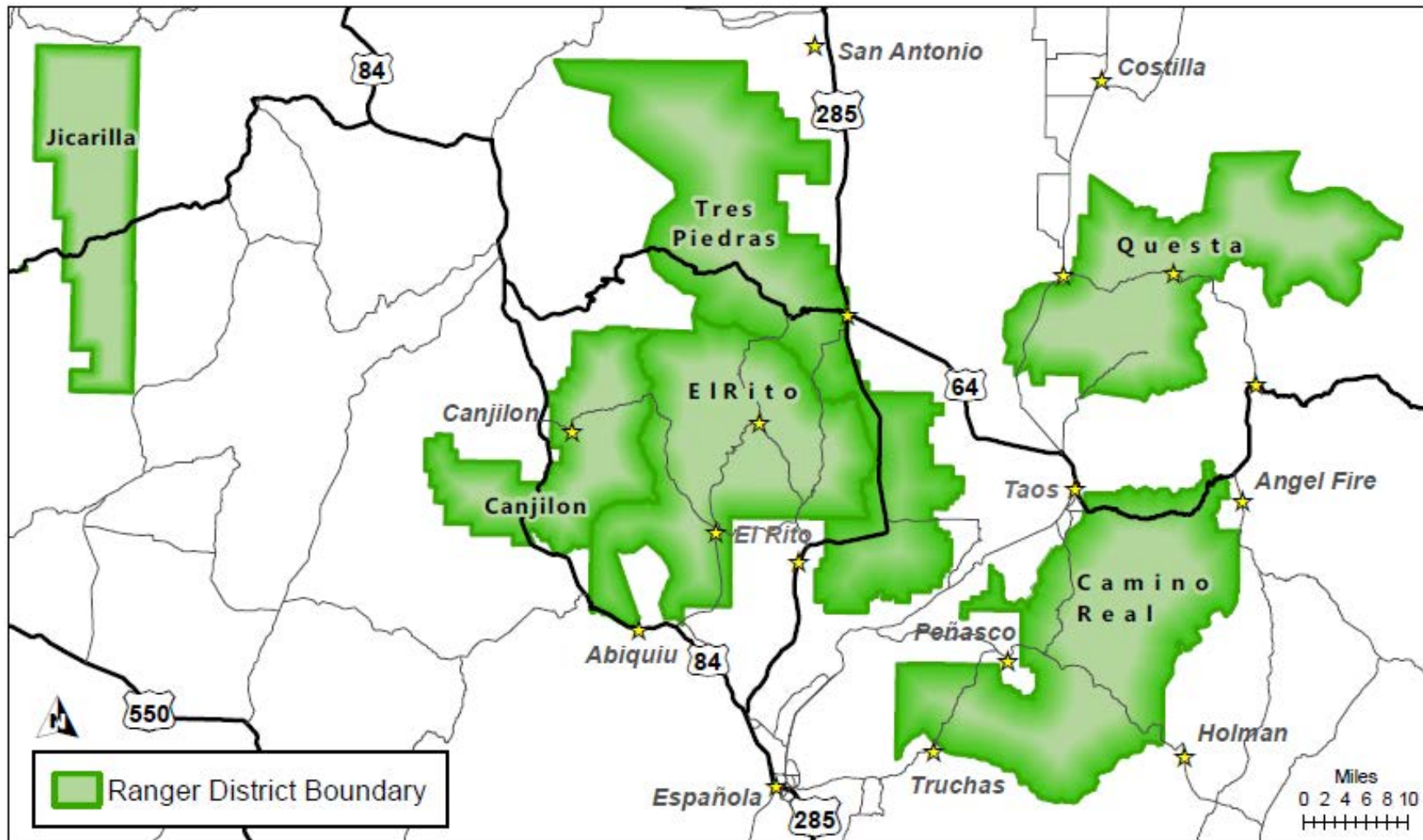


Figure 45. Ranger districts on the Carson National Forest

Table 52. Inventoried lands acres by ranger district and evaluation areas

Ranger District	Inventory Number*	Acres
Camino Real	C1	5,077
Camino Real	C2	5,196
Camino Real	C3	5,304
Camino Real	C4	19,091
Camino Real	C5	6,075
Camino Real	C6	6,183
Camino Real	C7	6,887
Camino Real	C9	9,155
Camino Real	C10	12,869
Camino Real	C11	13,710
Camino Real	C12	14,846
Camino Real	C13	21,874
Camino Real	C14	52,625
Camino Real	C15	61,619
El Rito and Canjilon	CrW1	322
El Rito and Canjilon	CrW2	393
El Rito and Canjilon	CrW3	400
El Rito and Canjilon	CrW4	484
El Rito and Canjilon	CrW5	523
El Rito and Canjilon	CrW6	745
El Rito and Canjilon	CrW7	902
El Rito and Canjilon	CrW8	1,130

Ranger District	Inventory Number*	Acres
El Rito and Canjilon	CrW9	1,134
El Rito and Canjilon	W1	5,405
El Rito and Canjilon	W2	5,432
El Rito and Canjilon	W3	5,484
El Rito and Canjilon	W5	5,828
El Rito and Canjilon	W6	6,022
El Rito and Canjilon	W8	6,479
El Rito and Canjilon	W9	6,802
El Rito and Canjilon	W15	8,034
El Rito and Canjilon	W16	8,045
El Rito and Canjilon	W18	9,466
El Rito and Canjilon	W19	10,347
El Rito and Canjilon	W22	13,202
El Rito and Canjilon	W23	13,839
El Rito and Canjilon	W24	17,199
El Rito and Canjilon	W25	14,455

Ranger District	Inventory Number*	Acres
El Rito and Canjilon	W26	24,717
El Rito and Canjilon	W28	27,399
El Rito and Canjilon	W31	36,354
El Rito and Canjilon	W32	39,929
El Rito and Canjilon	Wxs596AD D	304
El Rito and Canjilon	Wxs671AD D	1,113
Jicarilla	J1	5,757
Jicarilla	J2	8,343
Jicarilla	J3	9,178
Jicarilla	J4	9,327
Jicarilla	J5	19,212
Questa	ChW1	1
Questa	ChW2	2
Questa	ChW3	7
Questa	ChW4	21
Questa	ChW5	2,866
Questa	ChW6	4,789
Questa	LpW1	364
Questa	LpW2	2,042
Questa	Q1	5,807
Questa	Q2	6,475
Questa	Q3	9,544
Questa	Q4	33,562

Ranger District	Inventory Number*	Acres
Questa	Q5	69,682
Questa	Qxs162ADD	3,660
Questa	WpW1	11
Questa	WpW2	11
Questa	WpW3	50
Questa	WpW4	324
Questa	WpW5	1,600
Questa	WpW6	3,454
Tres Piedras	CbW1	3
Tres Piedras	CbW2	5
Tres Piedras	CbW3	7
Tres Piedras	CbW4	9
Tres Piedras	CbW5	12
Tres Piedras	CbW6	13
Tres Piedras	CbW7	22
Tres Piedras	CbW8	23
Tres Piedras	CbW9	805
Tres Piedras	W4	5,539
Tres Piedras	W7	6,126
Tres Piedras	W10	6,902
Tres Piedras	W11	7,139
Tres Piedras	W12	7,157
Tres Piedras	W13	7,543
Tres Piedras	W14	7,906
Tres Piedras	W17	8,958
Tres Piedras	W20	11,842
Tres Piedras	W21	12,162
Tres Piedras	W25	5,760

Ranger District	Inventory Number*	Acres
Tres Piedras	W27	25,680
Tres Piedras	W29	31,738
Tres Piedras	W30	31,838
Tres Piedras	Wxs573AD D	208
Tres Piedras	Wxs701AD D	2,304
Tres Piedras	Wxs710AD D	3,271
Tres Piedras	Wxs723AD D	4,445
Total	95	895,897

\*Each of inventory area is labeled with an inventory number as a way of referencing each area throughout the process.

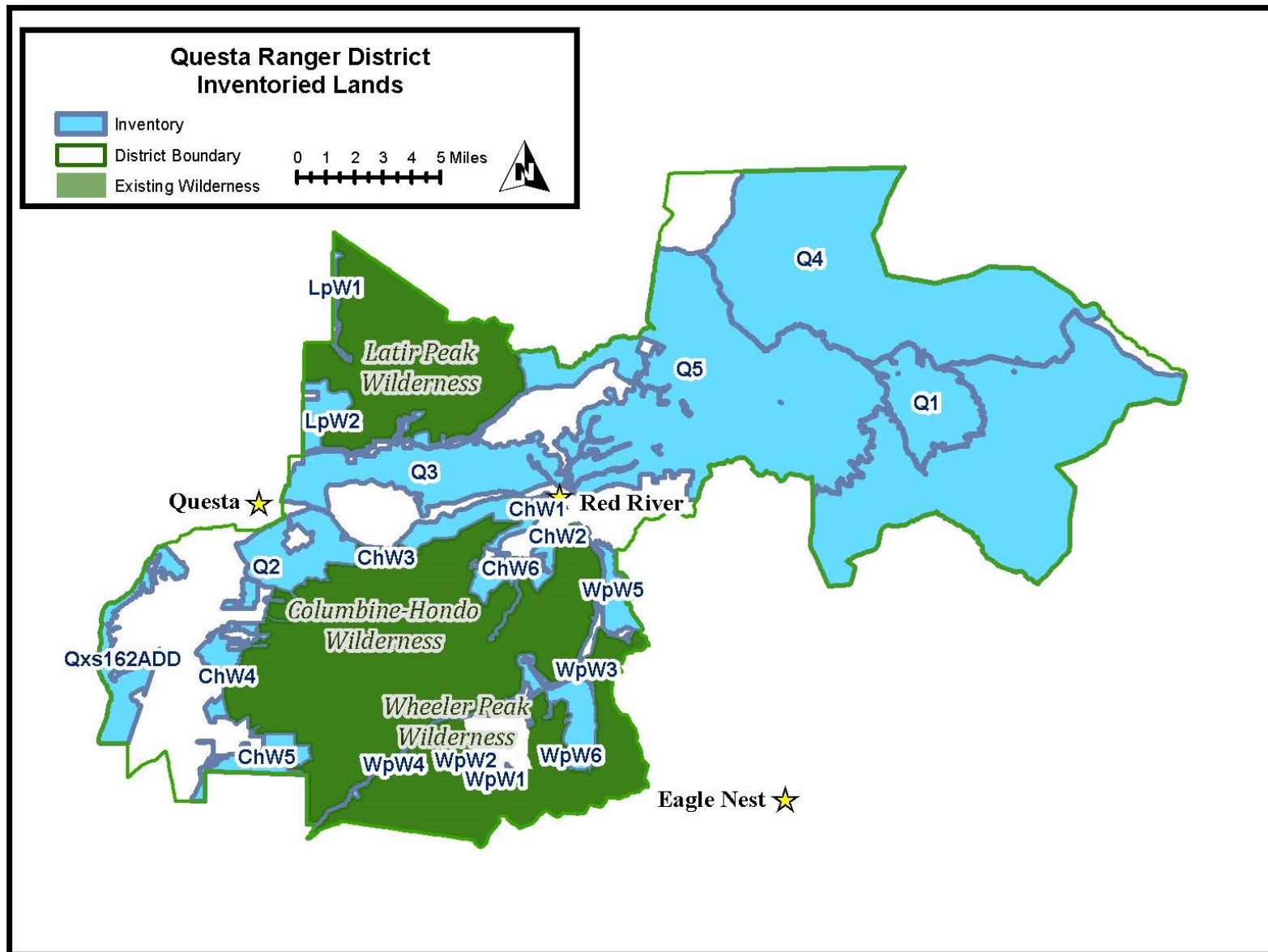


Figure 46. Questa Ranger District inventoried lands

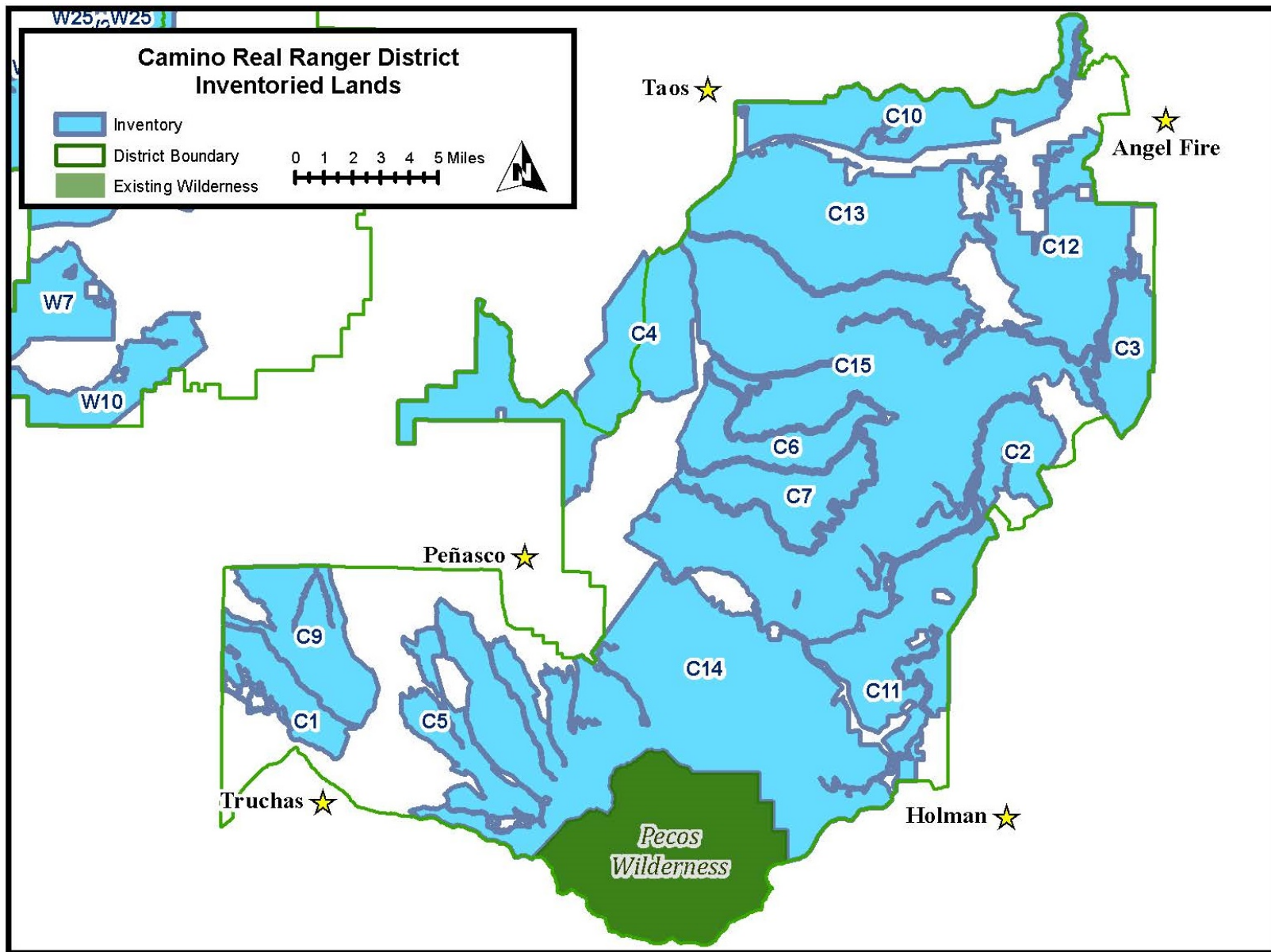


Figure 47. Camino Real Ranger District inventoried lands



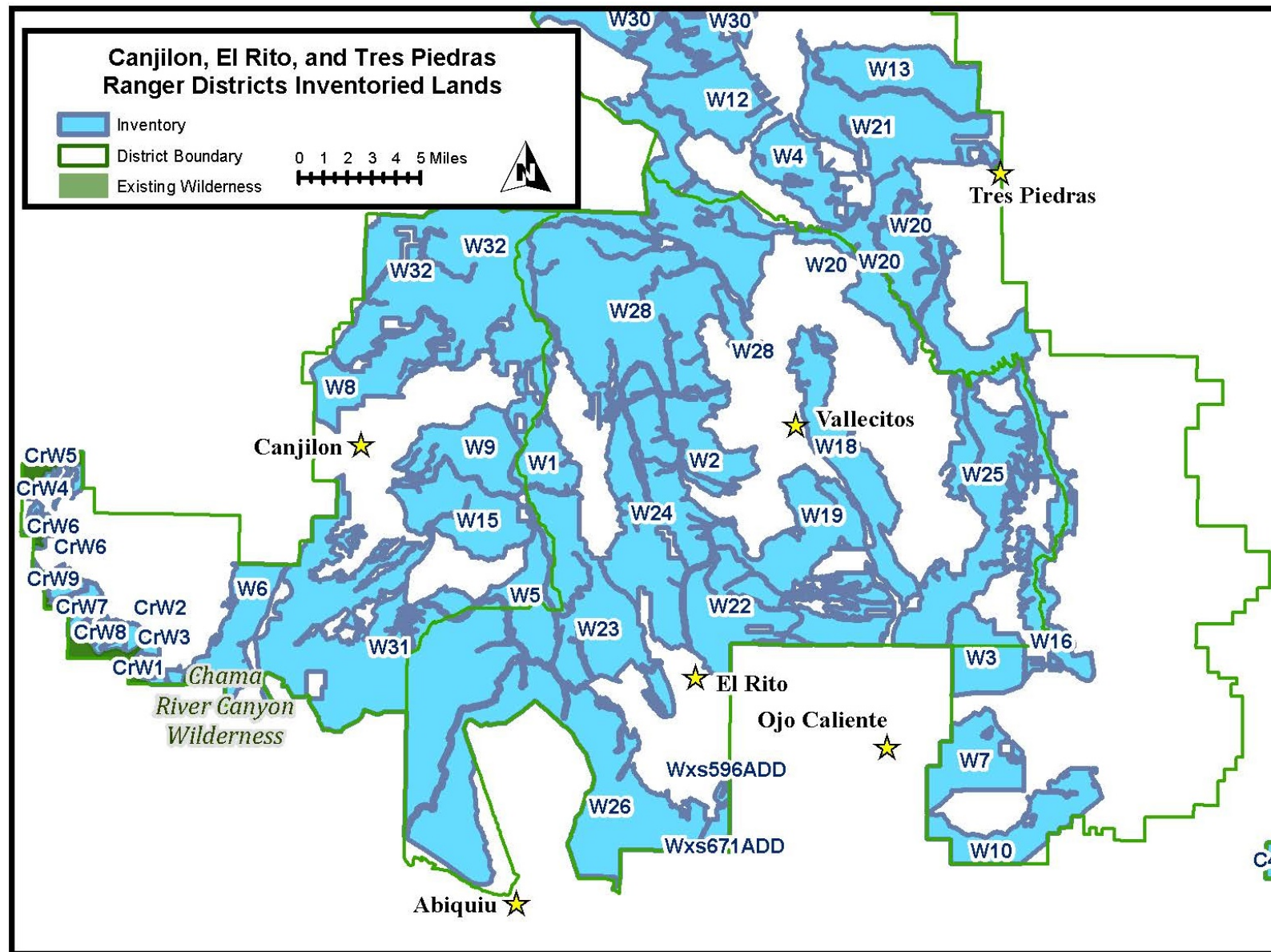


Figure 49. Canjilon, El Rito, and the southern part of Tres Piedras Ranger District inventoried lands

## Evaluation

The purpose of the evaluation step is to determine if the lands included in the inventory have wilderness characteristics. Lands evaluated as having wilderness characteristics may then be carried forward into the analysis step. The results of the analysis help inform the determination of which lands may be carried forward for final recommendation. The draft forest plan and alternatives incorporate some, none, or all of the lands from evaluation, depending on the theme of the alternative. The environmental impact statement documents the analysis of anticipated effects, if lands were to be managed as wilderness, under the proposed forest plan and each alternative.

Wilderness character is defined by five wilderness characteristics described by the Wilderness Preservation Act of 1964, with direction from Forest Service Handbook (FSH 1909.12, Chapter 70, section 72.1) on land management planning. To determine potential suitability for inclusion in the National Wilderness Preservation System, the Forest Plan Revision Team, extended team members, and district employees evaluated each inventoried area, using the five wilderness characteristics as defined below:

### **Characteristic 1: Apparent naturalness**

Addresses the question: Does the area generally appear to be affected primarily by the forces of nature, with the imprints of man's work substantially unnoticeable? Consider such factors as:

- The composition of plant and animal communities. The purpose of this factor is to determine if plant and animal communities appear substantially unnatural (for example, past management activities have created a plantation style forest with trees of a uniform species, age, and planted in rows);
- The extent to which the area appears to reflect ecological conditions that would normally be associated with the area without human intervention; and
- The extent to which improvements included in the area represent a departure from apparent naturalness.

### **Characteristic 2: Opportunities for solitude or unconfined recreation**

Addresses the question: Does the area have outstanding opportunities for solitude or for a primitive and unconfined type of recreation? The word "or" means that an area only has to possess one or the other. The area does not have to possess outstanding opportunities for both elements, nor does it need to have outstanding opportunities on every acre.

Consider impacts that are pervasive and influence a visitor's opportunity for solitude within the evaluated area. Factors to consider may include topography, presence of screening, distance from impacts, degree of permanent intrusions, and pervasive sights and sounds from outside the area.

Consider the opportunity to engage in primitive-type or unconfined recreation activities that lead to a visitor's ability to feel a part of nature. Examples of primitive-type recreation activities include observing wildlife, hiking, backpacking, horseback riding, fishing, hunting, floating, kayaking, cross-country skiing, camping, and enjoying nature.

**Characteristic 3: Size**

Addresses the question: Is the area of sufficient size to practically manage it for its preservation and use in an unimpaired condition?

**Characteristic 4: Ecological, scientific, educational, scenic, or historical values (outstanding values)**

Addresses the question: Does the area contain ecological or other features of scientific, educational, scenic, or historical value? These are not required to be present, but should be identified and evaluated where they exist. Such features or values may include:

- Rare plant or animal communities or rare ecosystems. Rare can be determined locally, regionally, nationally, or within the system of protected designations.
- Outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features.
- Historic and cultural resource sites. (Confidentiality requirements with respect to cultural resource sites must be respected (25 U.S.C 3056)).
- Research natural areas.
- High quality water resources or important watershed features.

**Characteristic 5: Manageability of wilderness characteristics**

Addresses the question: Can the area be managed to preserve its wilderness characteristics? Consider such factors as:

- Shape and configuration of the area;
- Legally established rights or uses within the area;
- Specific Federal or State laws that may be relevant to availability of the area for wilderness or the ability to manage the area to protect wilderness characteristics;
- The presence and amount of non-Federal land in the area; and
- Management of adjacent lands.

To facilitate the evaluation, all inventoried lands were grouped together by either watershed boundaries or allotment boundaries, and called evaluation areas. Within each evaluation area.

Table 53 and figure 50 show these evaluation areas, the inventory numbers included in these areas, and the acres of inventoried lands within each evaluation area. The names of four evaluation areas have been changed in response to public comments during the initial evaluation released for comment in June of 2016. Embudo Creek Watershed was changed to Camino Real South; Petaca was changed to Tres Piedras-Lucero Lakes; Cruces Basin and San Antonio was changed to Tres Piedras North; and Arroyo Seco Watershed was changed to Mesa Montosa-Ghost Ranch. All inventoried lands within each evaluation area were individually evaluated for wilderness characteristics, but discussed as a whole within each evaluation area.

**Table 53. Evaluation areas, inventory numbers within evaluation areas, and acres on each ranger district**

Ranger District	Evaluation Area	Inventory Numbers*	Acres
Camino Real	Camino Real South	C1, C5, C9, C11, and C14	86,643
Camino Real	Luna-Coyote	C2 and C3	10,500
Camino Real	Rio Grande del Rancho Watershed	C6, C7, C12, C13, and C15	111,408
Camino Real	Taos Canyon	C10	12,869
Camino Real	Warm Spring-Miranda	C4	19,091
El Rito and Canjilon	Alamosa	W18, W19, and W22	33,016
El Rito and Canjilon	Sierrita de Canjilon, Upper Canjilon-Upper El Rito Watersheds	W8, W28, and W32	73,807
El Rito and Canjilon	Comanche East Canyon	W3, W16, and W25	27,984
El Rito and Canjilon	El Rito-Lobato	W1, W2, W23, W24, W26, Wxs596ADD, and Wxs671ADD	68,008
El Rito and Canjilon	Mesa Montosa-Ghost Ranch	W5, W9, W15, and W31	57,018
El Rito and Canjilon	Rio Chama Wilderness Accompaniments and Echo Amphitheater	CrW1, CrW2, CrW3, CrW4, CrW5, CrW6, CrW7, CrW8, CrW9, and W6	12,056
Jicarilla	Jicarilla	J1, J2, J3, J4, and J5	51,816
Questa	Columbine-Hondo and Wheeler Peak Wilderness Accompaniments	ChW1, ChW2, ChW3, ChW4, ChW5, ChW6, Q2, WpW1, WpW2, WpW3, WpW4, WpW5, and WpW6	19,612
Questa	Latir Wilderness Accompaniments	LpW1 and LpW2	2,085
Questa	Midnight Meadows and Mallette Canyon	LpW2, Q3, and Q5	23,557
Questa	Rio Grande del Norte Accompaniments	Qxs162ADD	3,660
Questa	Valle Vidal	Q1, Q4, and Q5	95,351
Tres Piedras	Mesa Vibora-Cerro Azul	W7 and W10	13,028
Tres Piedras	Rio Tusas Watershed	W4, W12, W20, and W25	30,298
Tres Piedras	Tres Piedras North	CbW1, CbW2, CbW3, CbW4, CbW5, CbW6, CbW7, CbW8, CbW9, W11, W17, W27, W28, W29, W30, Wxs573ADD, Wxs701ADD, Wxs710ADD, and Wxs723ADD	116,479
Tres Piedras	Tres Piedras-Lucero Lakes	W13, W14, and W21	27,611
Total	21	95	895,897

\*Each of inventory area was labeled with an inventory number as a way of referencing each area throughout the process.

100

The evaluation of inventoried lands for wilderness characteristics was a qualitative evaluation. A preliminary evaluation was released to the public June 2016 for comment. As a result of public comments and more accurate on-the-ground information, four evaluation area's names were changed and 25,789 acres were reevaluated for wilderness characteristics after the preliminary evaluation.

The evaluation is sorted first by ranger district, then by the evaluation areas within each of the ranger districts, and finally by the narrative discussion of the five wilderness characteristics within each evaluation area.

There were several resources used to inform the evaluation that included: 1) on-the-ground knowledge of Forest Service personnel, 2) aerial photos, 3) GIS data, 4) field visits, 5) knowledge of our cooperating agencies<sup>8</sup>, and 6) input from the public.

The evaluation of inventoried lands for wilderness characteristics was a qualitative evaluation. Using the tools and information described above, a narrative discussion for each wilderness characteristic in each evaluation area was developed. To determine if an evaluation area or part of an evaluation area has wilderness characteristics, wilderness characteristics 1-5 were evaluated individually for each evaluation area and then a collective determination was made which considered all of the characteristics together for each evaluation area. In other words, an evaluation area needs to have both wilderness characteristics 1, 2, and 5 for an area to have wilderness characteristics. The evaluation area is then evaluated for characteristic 3, size. If the area is less than 5,000 acres, other factors (e.g., ability to be managed to retain wilderness characteristics, adjacency to other federal lands with wilderness characteristics) must be considered to make a final determination. If wilderness characteristic 4 exists, the evaluation must also meet all of the other criteria as described above.

## Evaluation Process

The Carson tried to be as thorough as possible in describing manmade activities or structures (identified using the tools and information described above) within or adjacent to the evaluation areas and where they were located. Adjacent manmade activities could affect apparent naturalness and/or solitude and unconfined recreation. Outstanding values (Characteristic 4) were discussed only if they existed within an evaluation area. Management of evaluation area and of adjacent federal lands was also taken into consideration when the area was evaluated for wilderness characteristics. When evaluation areas were evaluated, characteristic 1, 2, and 5 were evaluated first, then characteristic 4, and then characteristic 3. Below the characteristics will be discussed in the order they were evaluated.

### Characteristic 5 – Manageability

When evaluating for manageability, areas which would conflict with managing for wilderness characteristics were considered. The rationale for removing these specific areas from further evaluation is described below.

#### *Vallecitos Federal Sustained Yield Unit*

The Vallecitos Federal Sustained Yield Unit was congressionally established under Public Law 273 in 1947 to “promote the stability of forest industries, of employment, of communities, and of taxable forest

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<sup>8</sup> The Carson National Forest signed a memorandum of understanding (MOU) with 14 key state and local government entities and two Indian Tribes to involve them as cooperating agencies in revising and updating its existing forest plan. Members of Carson National Forest's Government Working Group include Counties of Colfax, Mora, Rio Arriba, and Taos, Soil and Water Conservation Districts for Colfax, East Rio Arriba, San Juan, Taos, and Western Mora, NM Acequia Commission, NM Land Grant Council, NM Environment, Surface Water Quality Bureau, NM Department Of Agriculture, NM Department of Game and Fish, NM State Forestry, Picuris Pueblo, Taos Pueblo, and Jicarilla Apache Nation.

wealth, through continuous supplies of timber.” Given that the management for a federal sustained yield unit requires timber harvesting projects and large scale motorized and mechanized equipment use, the Vallecitos Federal Sustained Yield Unit was removed from portions of evaluation areas.

### *Wild Horse Territories*

The Carson National Forest has four federally designated wild horse territories; however, only the Jarita Mesa and Jicarilla Wild Horse Territories are occupied and have management plans. Mesa Montosa and Mesa de las Viegas were declassified as wild horse territories in the 1986 plan, and these territories do not have management plans. The Forest Service is required to manage these wild horse herds to protect the herd and maintain ecological integrity of the land. The management plans for these areas require managing population numbers by capturing and transporting excessive members of the herd. This generally requires the use of all-terrain vehicles and motor vehicles with trailers, which are stated as management tools in the plan. Given the management requirements necessitated by the existing federal designation, the management to preserve wilderness characteristics in these two wild horse territories is precluded by the previous existing designated use of the area as directed by the territories’ management plans. For this reason, these two wild horse territories were removed from portions of evaluation areas.

### *Acequias*

Acequias are historic ditches throughout the forest that bring water from rivers and streams to communities for irrigation purposes. They are generally community-run through associations headed by a majordomo (ditch master) and date back to the time of Spanish settlement in the 1500s. These waterways are still in use today for the original purposes for which they were established. Acequias predate the national forest reservation are afforded special rights and status under National Forest System management. Under the Chief’s Policy relating to the Act of July 26, 1866 (Revised Statute 2339), continuing routine operation and maintenance of acequias is allowed without special use authorization being required. A 100-foot buffer was drawn around known acequias that have legally existing water rights and the right-of-way to maintain structures (i.e., headgates, flumes, channel), to include the use of motorized or mechanized equipment.



**Figure 51. Acequia de Arriba del Llano de San Miguel (C14)**

### *Wildland Urban Interface*

Fire management unit 1 areas are wildland-urban interface areas on the Carson National Forest that are near towns or villages. Wildland-urban interface areas that require intensive management of fuels and

intrusive suppression action if a fire occurs. This makes it difficult to manage to preserve wilderness characteristics. As documented in the Wildland Fire Decision Support System, these units are under current fire management direction, which states that fire is never desired and will be suppressed to protect life and property.

### *Shape and Configuration*

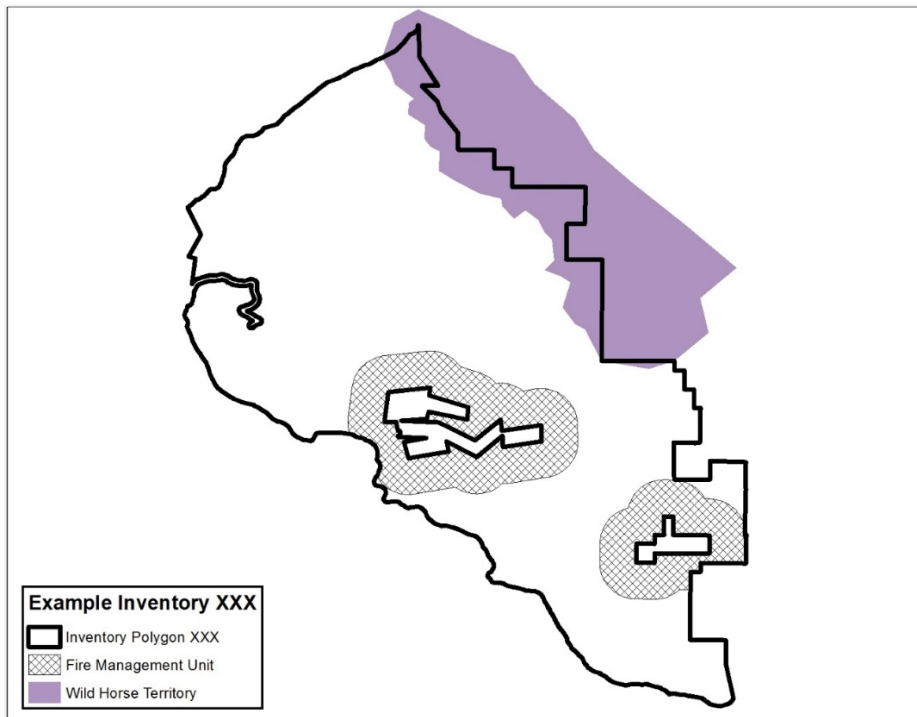
Shape and configuration consideration was contingent upon pinch points. A pinch point is a strip of land within an inventoried area that is less than ¼ mile wide between existing roadways. This pinch point could not be managed to preserve wilderness characteristics.

### *Valle Vidal Private Property*

During the inventory step, portions of land within Valle Vidal (Q5) were misidentified as National Forest System lands. Further inspection during evaluation found they were private lands belonging to Vermejo Park.

### *Evaluation Scenario*

Figure 52 shows example inventory area XXX (5,343 acres) to illustrate the evaluation scenario of areas which would conflict with managing for wilderness characteristics (characteristic 5). In this scenario, 10 percent (532 acres) of inventory area XXX would be evaluated as areas which would conflict with managing the area for wilderness characteristics.



**Figure 52. Example inventory XXX illustrates a scenario of conflicts with managing the area for wilderness characteristics.**

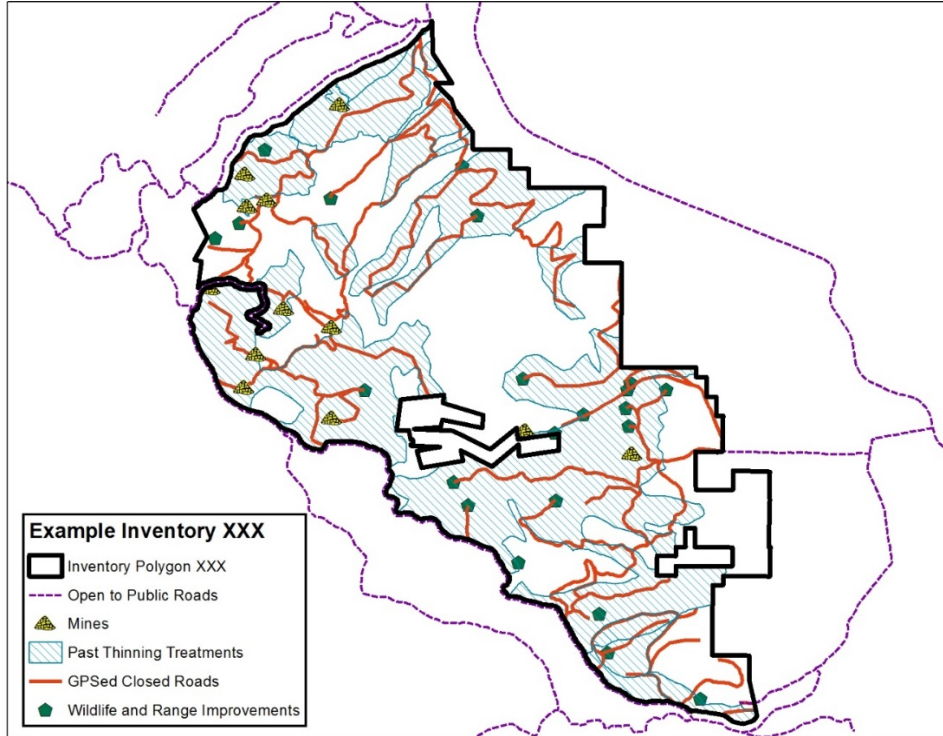
### **Characteristic 1—Apparent Naturalness**

When evaluating for apparent naturalness, the extent to which manmade improvements and activities existing in the area represent a departure from apparent naturalness was considered. These manmade improvements or activities included mines that are still in use or have been rehabilitated in the last 15

years, old logging roads that are still visible (located on the ground using a global positioning system), range and wildlife improvements (e.g. spring developments, cattle guards, trick tanks, and corrals), and evidence (e.g. stumps and slash) of logging activities that have occurred within the last 10 years.

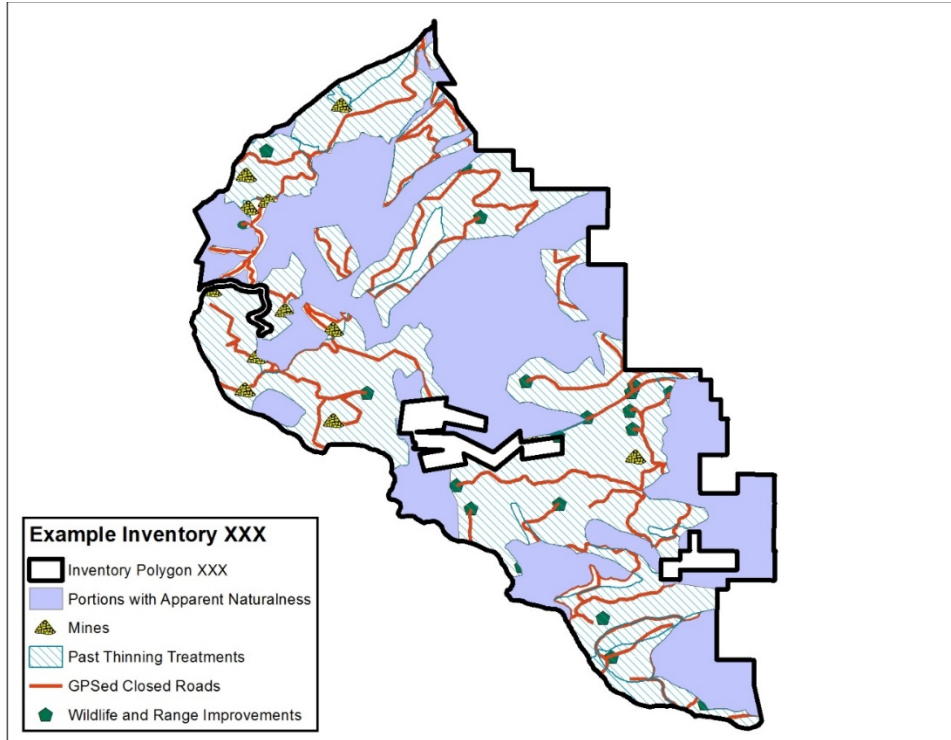
### *Evaluation Scenario*

Figure 53 illustrates how naturally apparent manmade improvements and activities could appear in example inventory area XXX.



**Figure 53: Example of manmade improvements and activities that are apparent in example inventory area XXX**

The Carson evaluated where and how prevalent these activities or improvements were within all inventoried lands of the evaluation area. For the sample scenario, 54 percent (2,897 acres) of inventory area XXX would be evaluated as lacking apparent naturalness. Figure 54 shows the areas evaluated in this example that were determined to have apparent naturalness (2,446 acres or 46 percent) within inventory polygon XXX.



**Figure 54: Areas evaluated as having apparent naturalness in example inventory XXX**

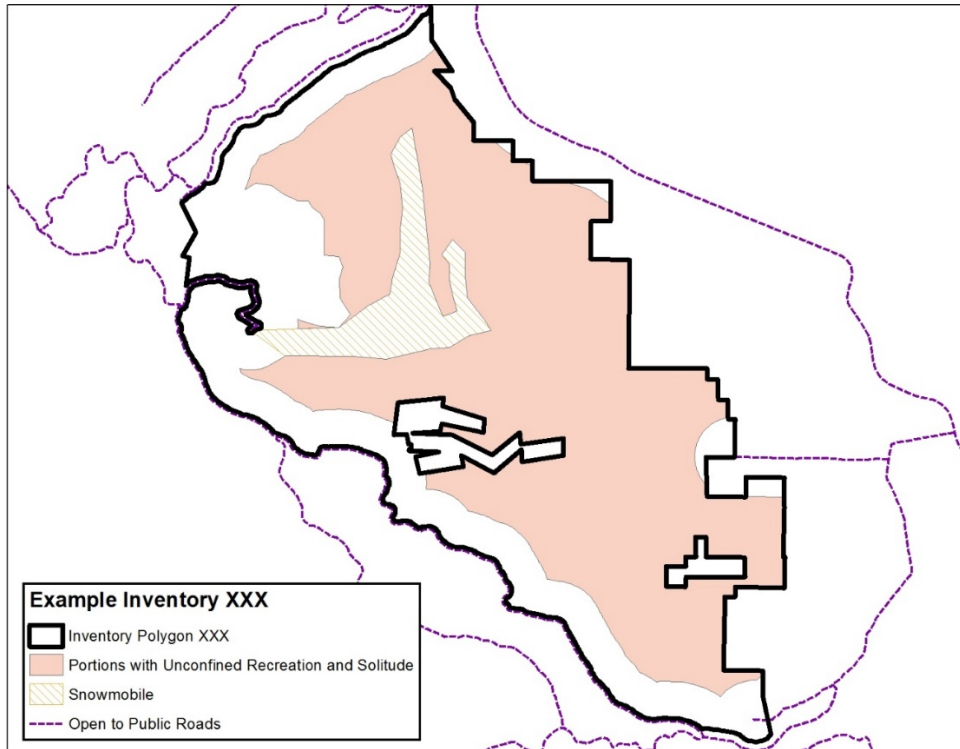
### Characteristic 2–Solitude or Unconfined Recreation

When evaluating for solitude, pervasive sights and sounds from just outside and within the evaluation area were considered. A 0.25-mile buffer around noise factors was used to address potential noise issues. Factors included chainsaw noise from fuelwood gathering along existing open roads, train whistles, vehicle noise on existing roads, and areas currently open to snowmobile use during the winter.

When evaluating for unconfined recreation, we considered the opportunity to engage in primitive-type or unconfined recreation activities that lead to a visitor’s ability to feel a part of nature. A majority of the inventory polygons are evaluated as having unconfined recreation.

#### *Evaluation Scenario*

In this example 75 percent (4,009 acres) of inventory area XXX would be evaluated as having the characteristic of solitude . Figure 55 shows areas evaluated as having both solitude and unconfined recreation (71 percent or 3,778 acres) within inventory area XXX.



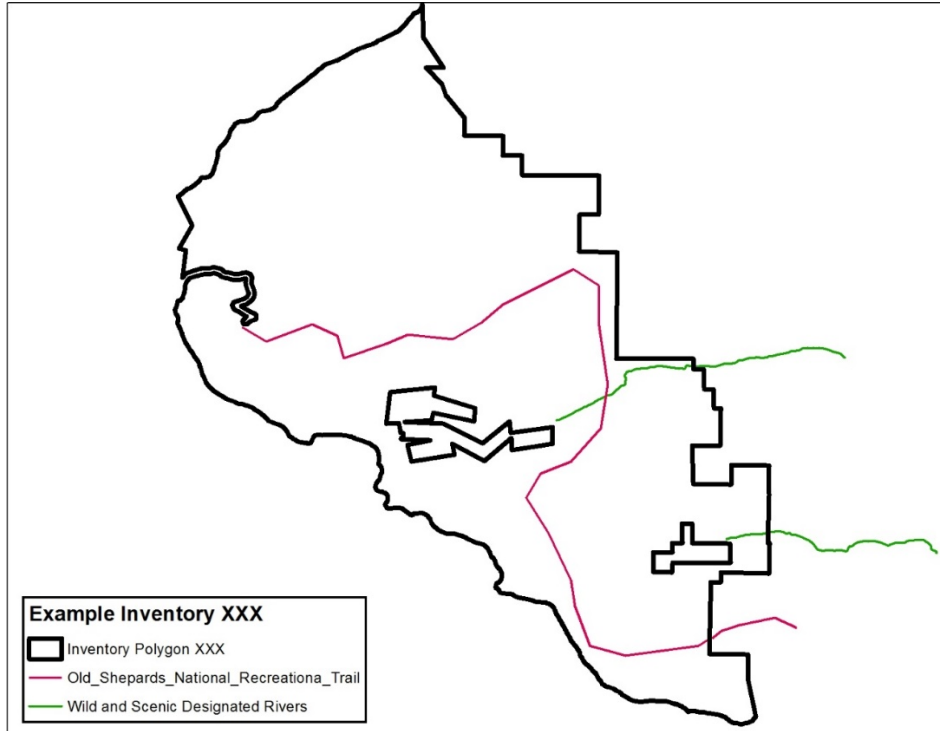
**Figure 55: Areas evaluated as having solitude and unconfined recreation in example inventory XXX**

#### Characteristic 4 – Outstanding Values

Outstanding values (characteristic 4) were evaluated only when they were found to exist within an evaluation area. Factors included rare plant or animal communities or rare ecosystems; outstanding landscape features such as waterfalls, mountains, viewpoints, waterbodies, or geologic features; inventoried roadless areas; research natural areas; historic and cultural resource sites; and high quality water resources or important watershed features.

##### *Evaluation Scenario*

Figure 56 depicts where outstanding features were evaluated in inventory area XXX. For this evaluation scenario, a national historic trail and eligible wild and scenic rivers were included within inventory area XXX.



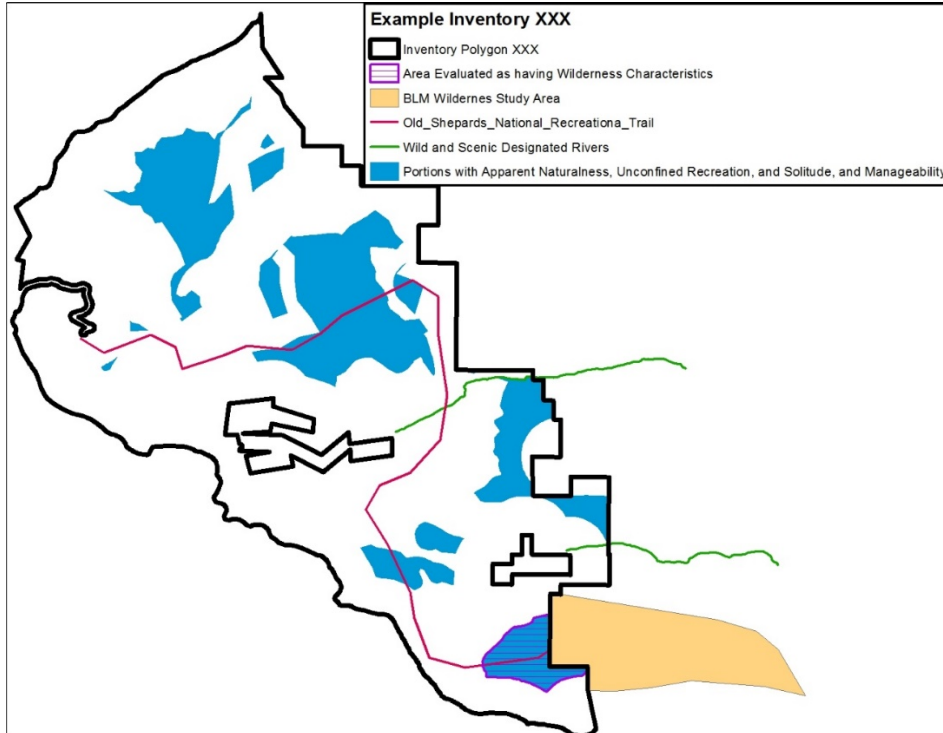
**Figure 56: Outstanding Values within example inventory XXX**

### Characteristic 3 – Size

For the final step, characteristics 1-4 were then evaluated all together for each evaluation area. The forest considered if the areas with characteristic 1, 2, and 4 are of sufficient size (characteristic 3) to practically manage it for its preservation and use in an unimpaired condition.

#### *Evaluation Scenario*

Figure 57 shows the portion of inventory area XXX that were evaluated as having apparent naturalness, solitude, unconfined recreation, and outstanding values (33 percent or 1,781 acres of inventory XXX).



**Figure 57: Portion of example inventory XXX evaluated as having apparent naturalness, solitude, unconfined recreation, manageability, and outstanding values**

For the example scenario inventory area XXX, the remaining acreages that were evaluated as having characteristics 1, 2, 5, and sometimes 4 are less than 875 acres individually. The largest being around 864 acres, and the smallest being less than 5 acres. Upon review, there are 101 acres that are adjacent to a Bureau of Land Management Wilderness Study Area, and if this area was to be managed in conjunction with the Bureau of Land Management Wilderness Study Area, it would be over 5,000 acres as a whole. The remaining 1,148 acres lack geographical definition to maintain these acreages for preservation and/or use in an unimpaired condition. Therefore, 101 acres would be evaluated as having wilderness characteristic for our scenario and the remaining acreages would be evaluated as have wilderness characteristics, due to lack of apparent naturalness (54 percent), limited solitude or unconfined recreation (29 percent), manageability (10 percent), and size.

### Scenario Evaluation Determination

101 acres of inventory XXX are evaluated as having wilderness characteristics, and thus were included in the next stage of the wilderness recommendation process, analysis. This portion makes up 2 percent of the area. Therefore, 101 acres were evaluated as having wilderness characteristic for our scenario and the remaining acreages do not have wilderness characteristics, due to lack of apparent naturalness (54 percent), limited solitude or unconfined recreation (29 percent), manageability (10 percent), and size. Areas determined to not have wilderness characteristics will not be included in the analysis step of the wilderness recommendation process.

### Evaluation Results

About 8 percent of the inventoried lands were evaluated as having wilderness characteristics. That is approximately 5 percent of the entire Carson National Forest. Table 54 and figure 58 through figure 69 show lands evaluated as having wilderness characteristics by ranger district. The detailed rationale for

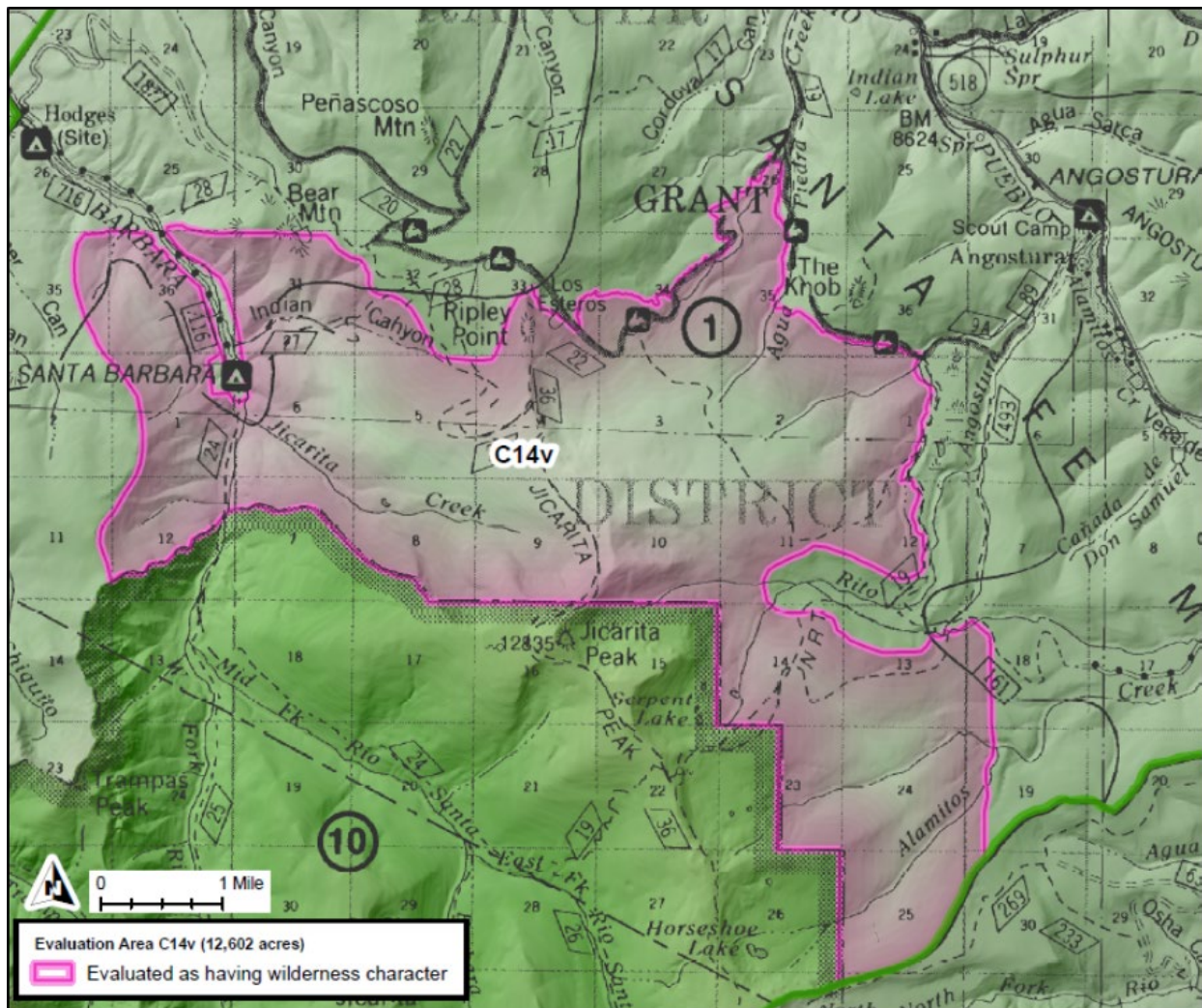
removing inventoried lands in Evaluation Phase 2 can be found in the full Wilderness Recommendation Process – Inventory and Evaluation Report within the project record or on the Carson National Forest website.

**Table 54. Lands evaluated as having wilderness characteristics**

Ranger District	ID Number	Evaluation Area	Acres	Percent of Evaluation Area	Percent of Inventoried Lands	Percent of Carson
Camino Real	C14v	Camino Real South	12,597	15	1	1.00
Camino Real	C14x	Camino Real South	2,340	3	0.3	0.20
El Rito and Canjilon	CrW5b	Rio Chama Wilderness Accompaniments and Echo Amphitheater	82	1	0.01	0.01
El Rito and Canjilon	CrW6c	Rio Chama Wilderness Accompaniments and Echo Amphitheater	21	0.2	0.002	0.001
El Rito and Canjilon	W31d	Mesa Montosa-Ghost Ranch	11,479	20	1	1.00
El Rito and Canjilon	W32a	Sierrita de Canjilon, Upper Canjilon-Upper El Rito Watersheds	6,998	9	1	0.50
Questa	Q4g	Valle Vidal	9,361	10	1	1.00
Questa	Q5n	Midnight Meadows and Mallette Canyon	1,165	5	0.1	0.10
Tres Piedras	W17f	Tres Piedras North	1,675	1	0.002	0.001
Tres Piedras	W17k	Tres Piedras North	2,670	2	0.3	0.20
Tres Piedras	W27a	Tres Piedras North	7,117	6	1	0.50
Tres Piedras	W29c	Tres Piedras North	2,491	2	0.3	0.20
Tres Piedras	W29e	Tres Piedras North	10,000	9	1	1.00
Total	NA	NA	67,996	NA	8	4.6

NA is not applicable.

## Camino Real South (C14v)



**Figure 58. Camino Real South C14v evaluated as having wilderness characteristics**

Within Camino Real South (C14v), plant and animal communities appear natural and appear to reflect ecological conditions that would normally be associated with the area in the absence of human intervention. Infrastructure in the area is rare and does not detract from apparent naturalness. There are opportunities to engage in primitive and unconfined recreation including: hiking, horseback riding, viewing natural landscapes, and wildlife viewing. Human activities are uncommon, making opportunities to feel alone possible in much of the area. Other outstanding values include the Jicarita Peak National Recreation Trail (though there are higher value, more popular trails in the area) and remnant structures and logging evidence from the 1907-1928 Santa Barbara Pole and Tie Company and Trampas Lumber Company.

## Camino Real South (C14x)

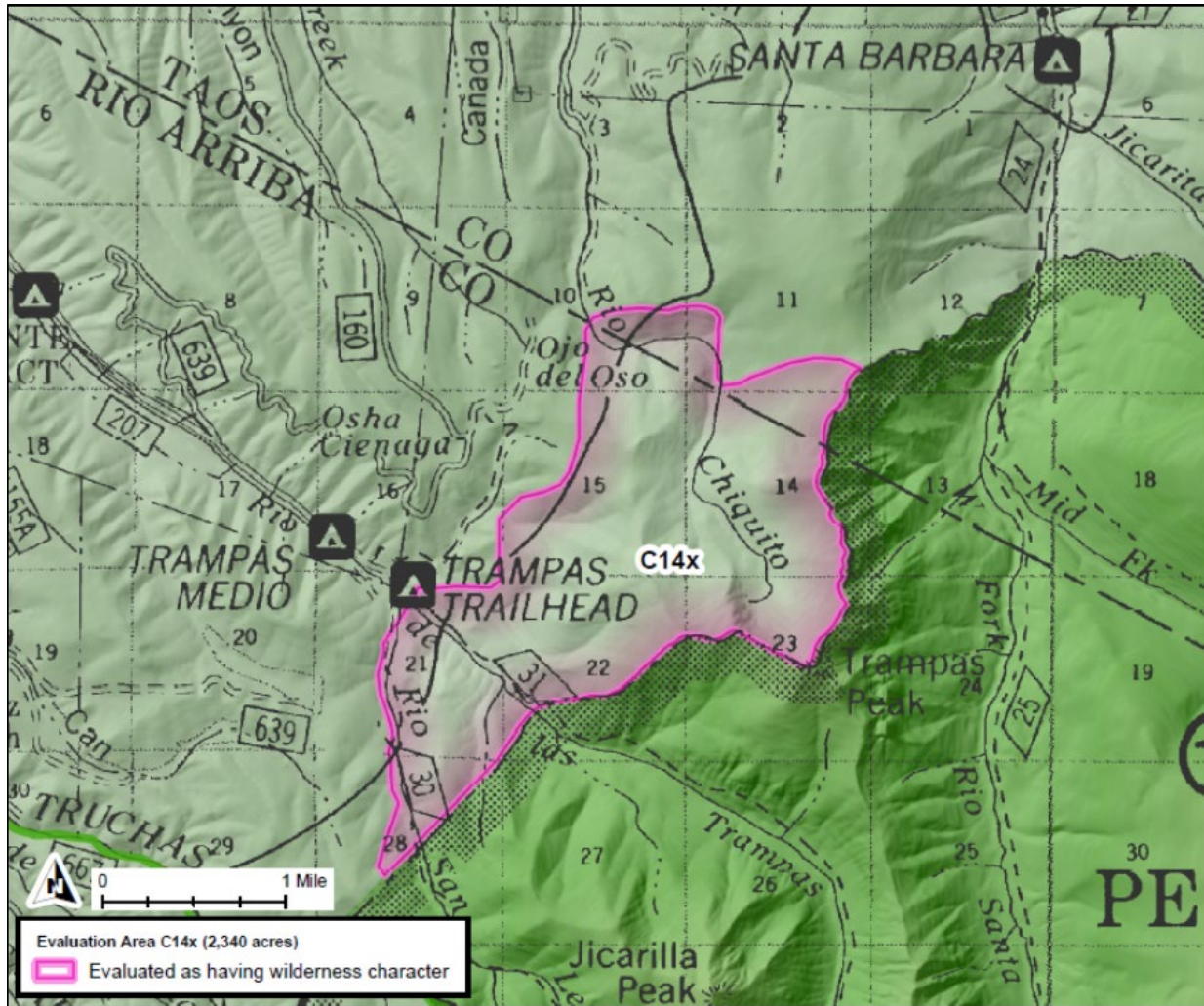
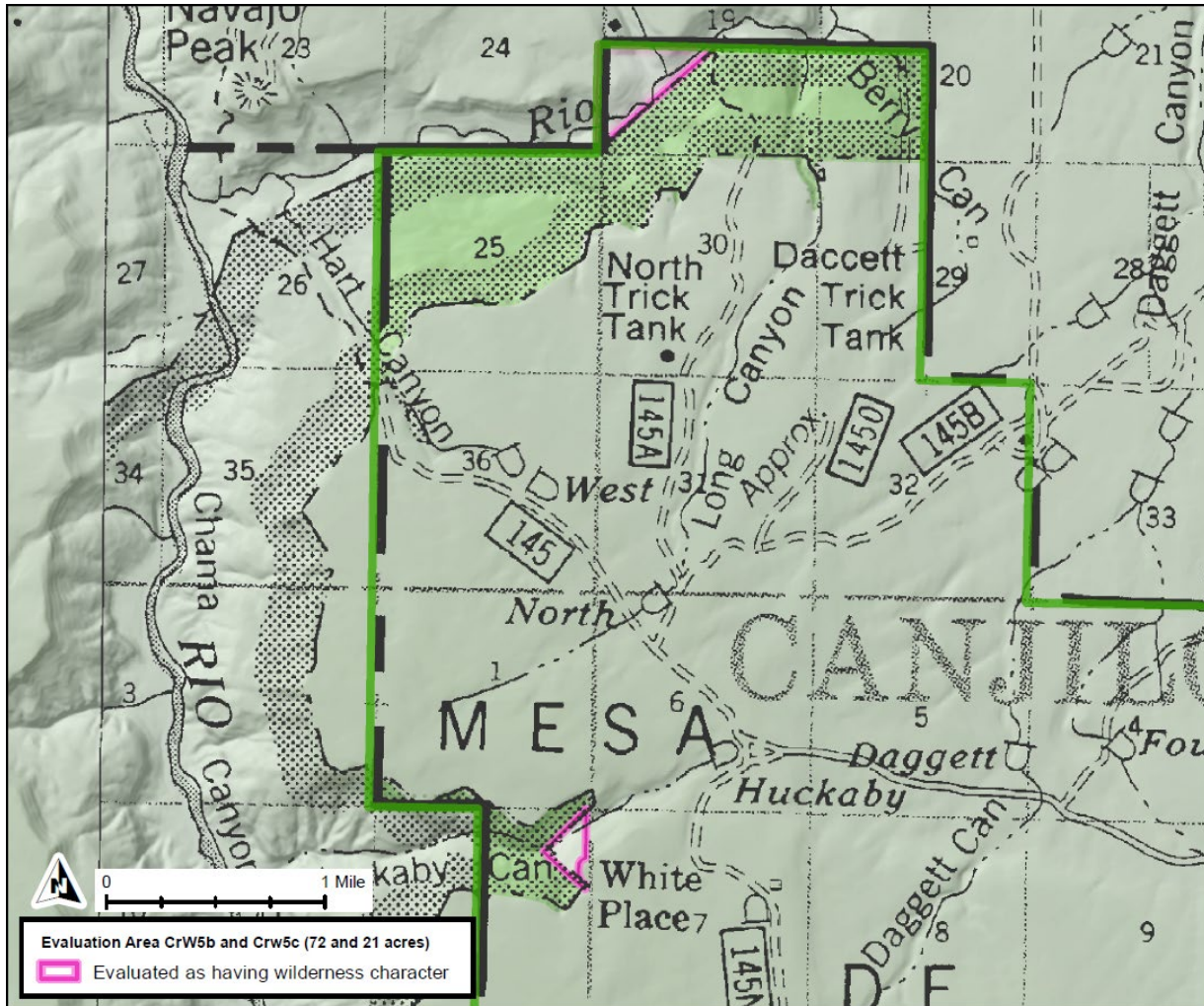


Figure 59. Camino Real South C14x evaluated as having wilderness characteristics

Within in Camino Real South C14x, plant and animal communities appear natural and appear to reflect ecological conditions that would normally be associated with the area in the absence of human intervention. Infrastructure in the area is rare and does not detract from apparent naturalness. There are opportunities to engage in primitive and unconfined recreation including: hiking, horseback riding, viewing natural landscapes, and wildlife viewing. Human activities are uncommon, making opportunities to feel alone possible in much of the area. Other outstanding values include the Jicarita Peak National Recreation Trail (though there are higher value, more popular trails in the area) and remnant structures and logging evidence from the 1907-1928 Santa Barbara Pole and Tie Company and Trampas Lumber Company.

Rio Chama Wilderness Accompaniments and Echo Amphitheater (CrW5b and CrW6c)



**Figure 60. Rio Chama Wilderness Accompaniments and Echo Amphitheater CrW5b and CrW6c evaluated as having wilderness characteristics**

Within CrW5b and CrW6c, plant and animal communities appear natural and appear to reflect ecological conditions that would normally be associated with the areas in the absence of human intervention. Infrastructure is absent inside the areas and does not significantly detract from apparent naturalness. Opportunities exist to engage in primitive recreation including: hiking, viewing natural landscapes, and wildlife viewing. Human activities inside the RWMA are rare and the adjacent Chama River Canyon Wilderness provides opportunities to feel alone. No other outstanding values have been identified.

## Mesa Montosa-Ghost Ranch (W31d)

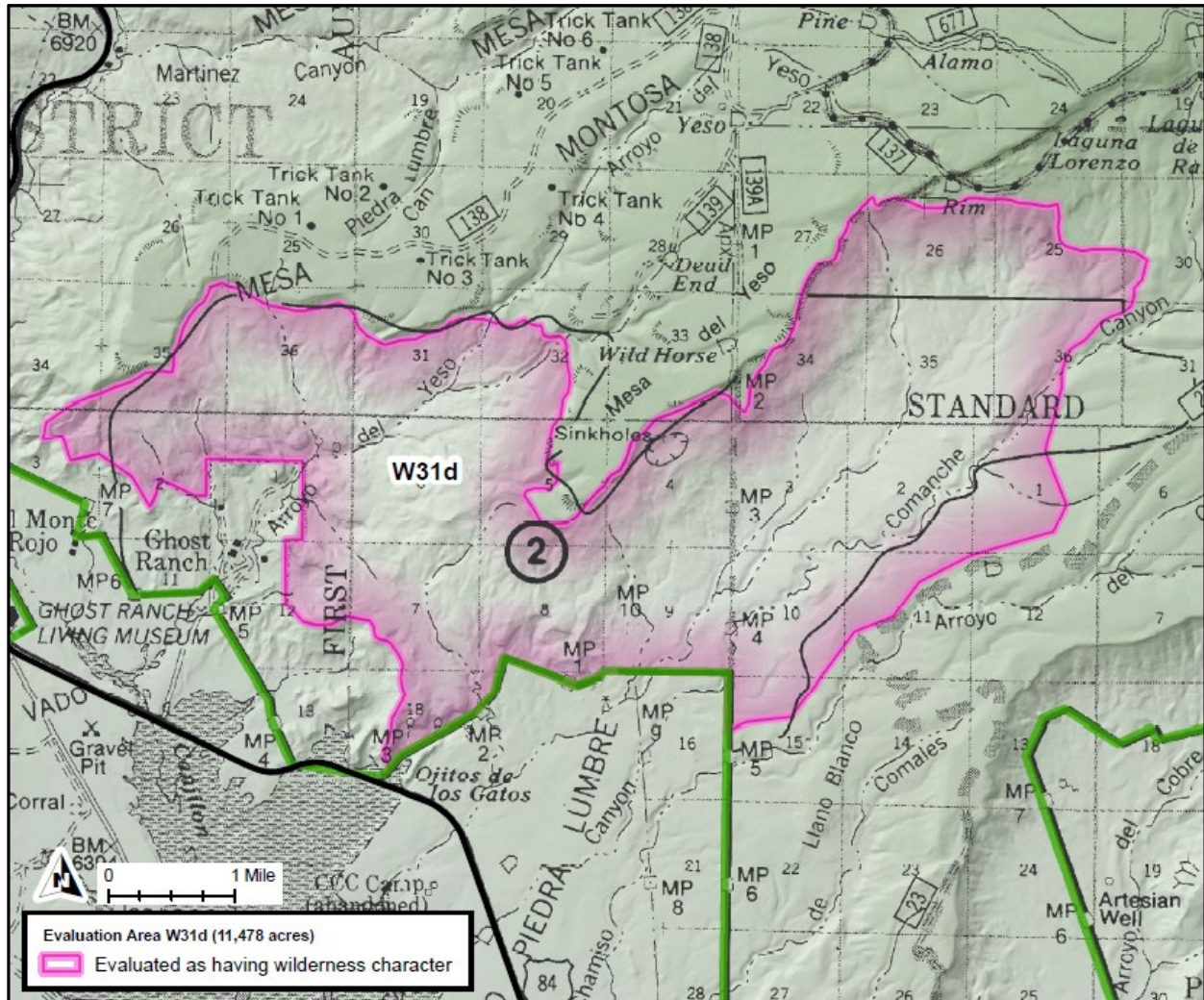
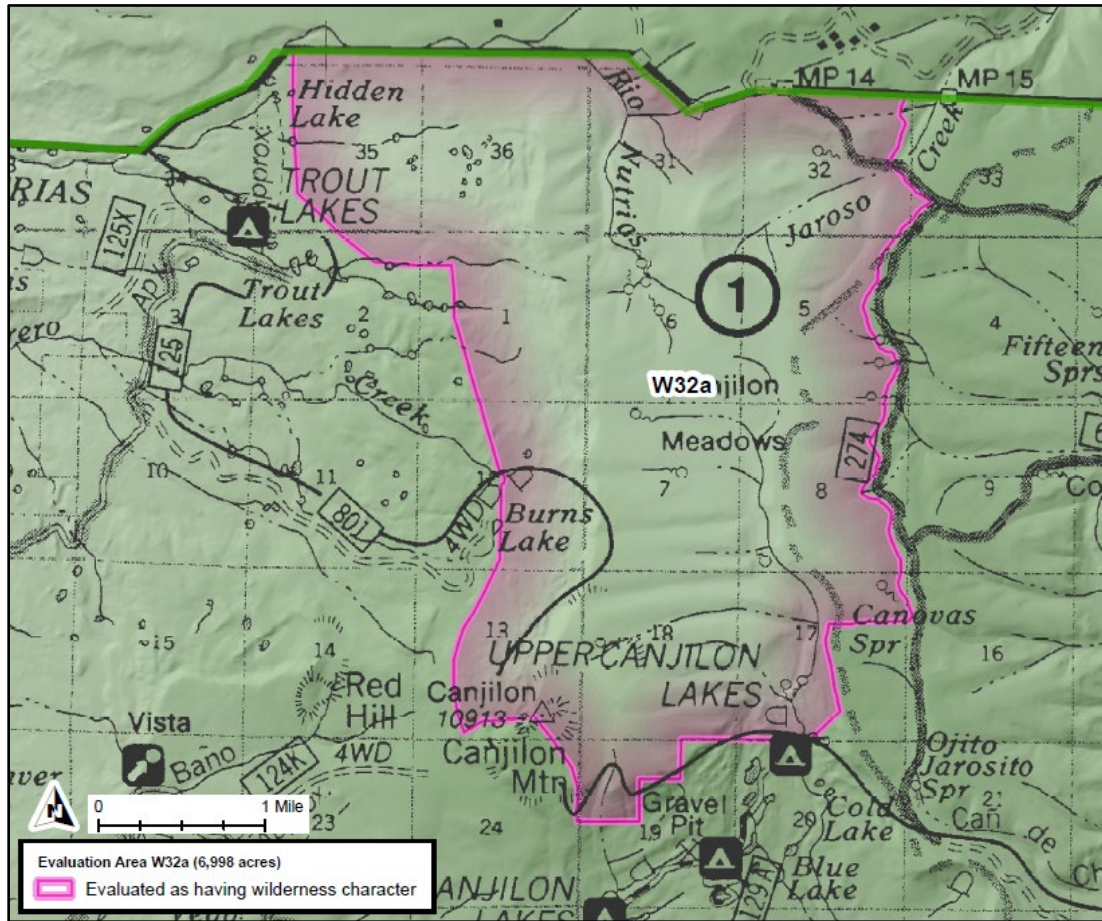


Figure 61. Mesa Montosa-Ghost Ranch W31d evaluated as having wilderness characteristics

Within Mesa Montosa-Ghost Ranch W31d, plant and animal communities appear natural and appear to reflect ecological conditions that would normally be associated with the area in the absence of human intervention. Infrastructure in the area is rare and does not detract from apparent naturalness. There are high quality opportunities to engage in primitive and unconfined recreation including: hiking, horseback riding, viewing natural landscapes, and wildlife viewing. Human activities are uncommon making opportunities to feel alone possible in much of the area. Other outstanding values include sandstone cliffs, fossils, and rare plants, including Chacon milkvetch, Chama blazing star, and tufted sand verbena.

# Sierrita de Canjilon, Upper Canjilon-Upper El Rito Watersheds (W32a)



**Figure 62. Sierrita de Canjilon, Upper Canjilon-Upper El Rito Watersheds W32a evaluated as having wilderness characteristics**

Within Sierrita de Canjilon, Upper Canjilon-Upper El Rito watersheds W32a, plant and animal communities appear natural and appear to reflect ecological conditions that would normally be associated with the area in the absence of human intervention. Infrastructure in the area, other than range fencing, is rare and does not detract from apparent naturalness. There are opportunities to engage in primitive and unconfined recreation including: hiking, horseback riding, viewing natural landscapes, and wildlife viewing. Outstanding values include the Continental Divide Trail and Canjilon Mountain.

## Valle Vidal (Q4g)

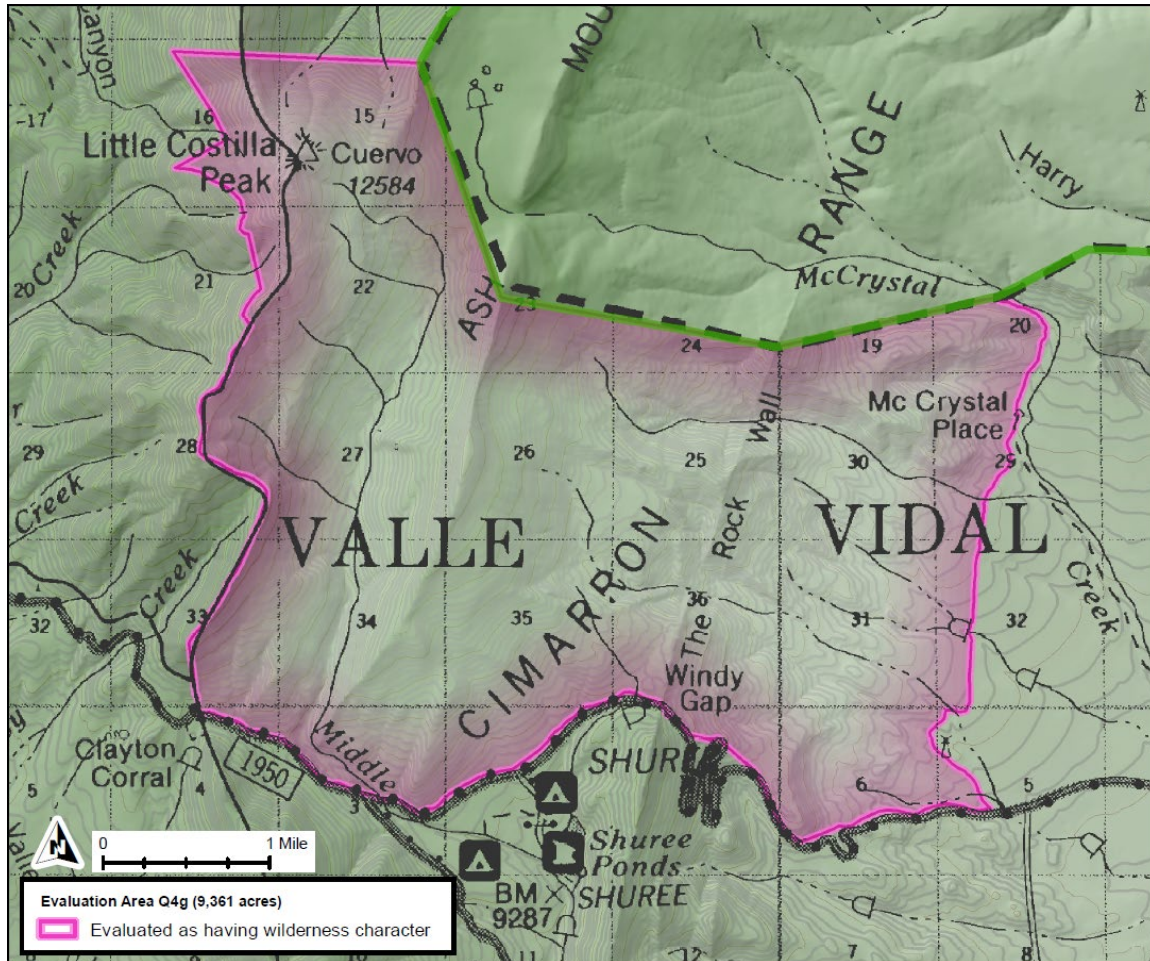
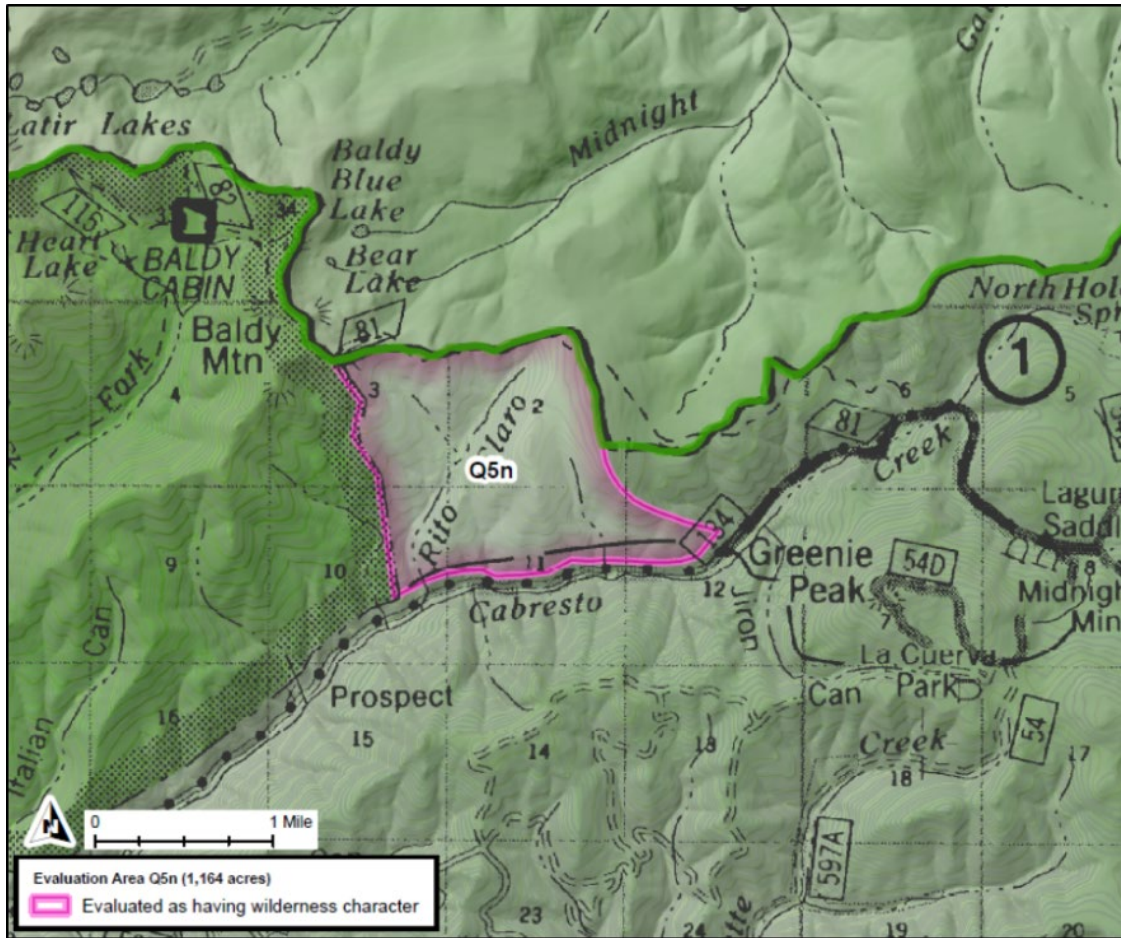


Figure 63. Valle Vidal Q4g evaluated as having wilderness characteristics

Within Valle Vidal Q4g, plant and animal communities appear natural and appear to reflect ecological conditions that would normally be associated with the area in the absence of human intervention. Infrastructure in the area is rare and does not detract from apparent naturalness. There are high quality opportunities to engage in primitive and unconfined recreation including hiking, horseback riding, viewing natural landscapes, and wildlife viewing. Human activities are uncommon, making opportunities to feel alone possible in much of the area. Outstanding values include the bristlecone pine stand, Ash Mountain (shale rock peak), and the Rock Wall geologic feature.

## Midnight Meadows and Mallette Canyon (Q5n)



**Figure 64. Midnight Meadows and Mallette Canyon Q5n evaluated as having wilderness characteristics**

Within Midnight Meadows and Mallette Canyon Q5n, plant and animal communities appear natural and appear to reflect ecological conditions that would normally be associated with the area in the absence of human intervention. Infrastructure in the area is rare and does not detract from apparent naturalness. Some high quality opportunities to engage in primitive and unconfined recreation exist in the area including: hiking, horseback riding, viewing natural landscapes, and wildlife viewing. Human activities are uncommon, making opportunities to feel alone possible in much of the area, especially away from Forest Road 134. No outstanding values were identified.



## Tres Piedras North W17k

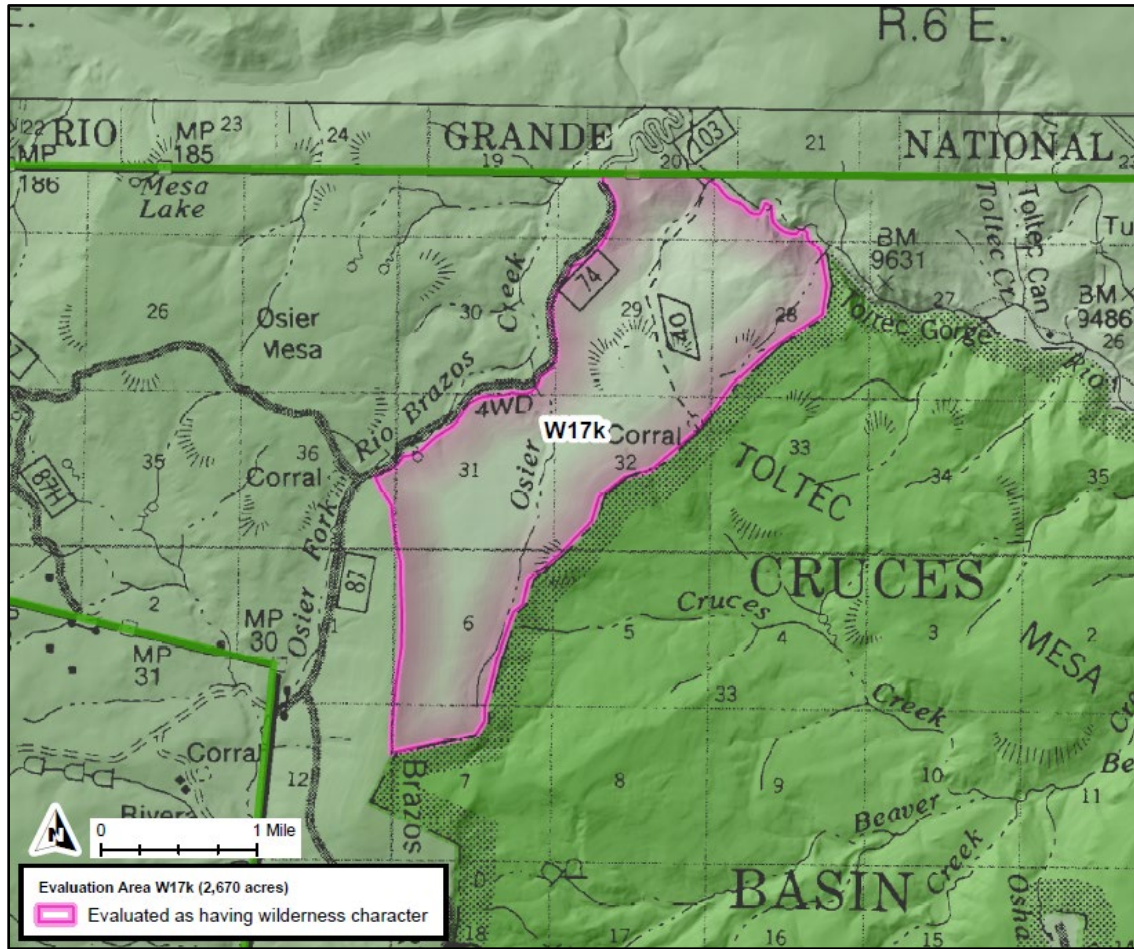


Figure 66. Tres Piedras North W17k evaluated as having wilderness characteristics

Within W17k, plant and animal communities appear natural and appear to reflect ecological conditions that would normally be associated with the area in the absence of human intervention. Infrastructure other than range fencing is rare and does not detract from apparent naturalness. There are opportunities to engage in primitive and unconfined recreation including: hiking, viewing natural landscapes, and wildlife viewing. Human activities are uncommon at some times of year, making opportunities to feel alone possible in the area. Outstanding values include the Continental Divide Trail.

### Tres Piedras North (W27a)

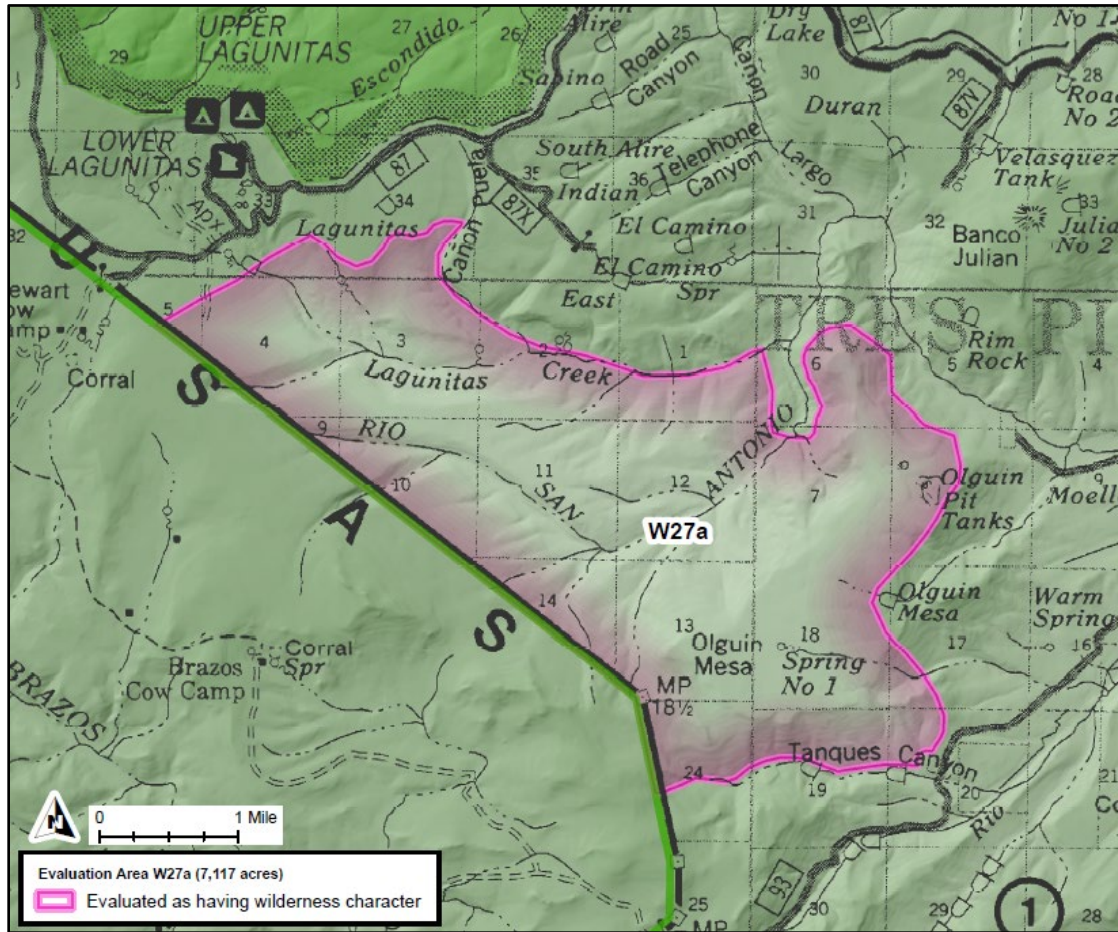


Figure 67. Tres Piedras North W27a evaluated as having wilderness characteristics

Within Tres Piedras North W27a, plant and animal communities appear natural and appear to reflect ecological conditions that would normally be associated with the area in the absence of human intervention. Infrastructure in the area is rare and does not detract from apparent naturalness. There are high quality opportunities to engage in primitive and unconfined recreation including: hiking, horseback riding, viewing natural landscapes, and wildlife viewing. Human activities are uncommon during some times of year providing opportunities to feel alone. Outstanding values include the Continental Divide Trail.

## Tres Piedras North (W29c)

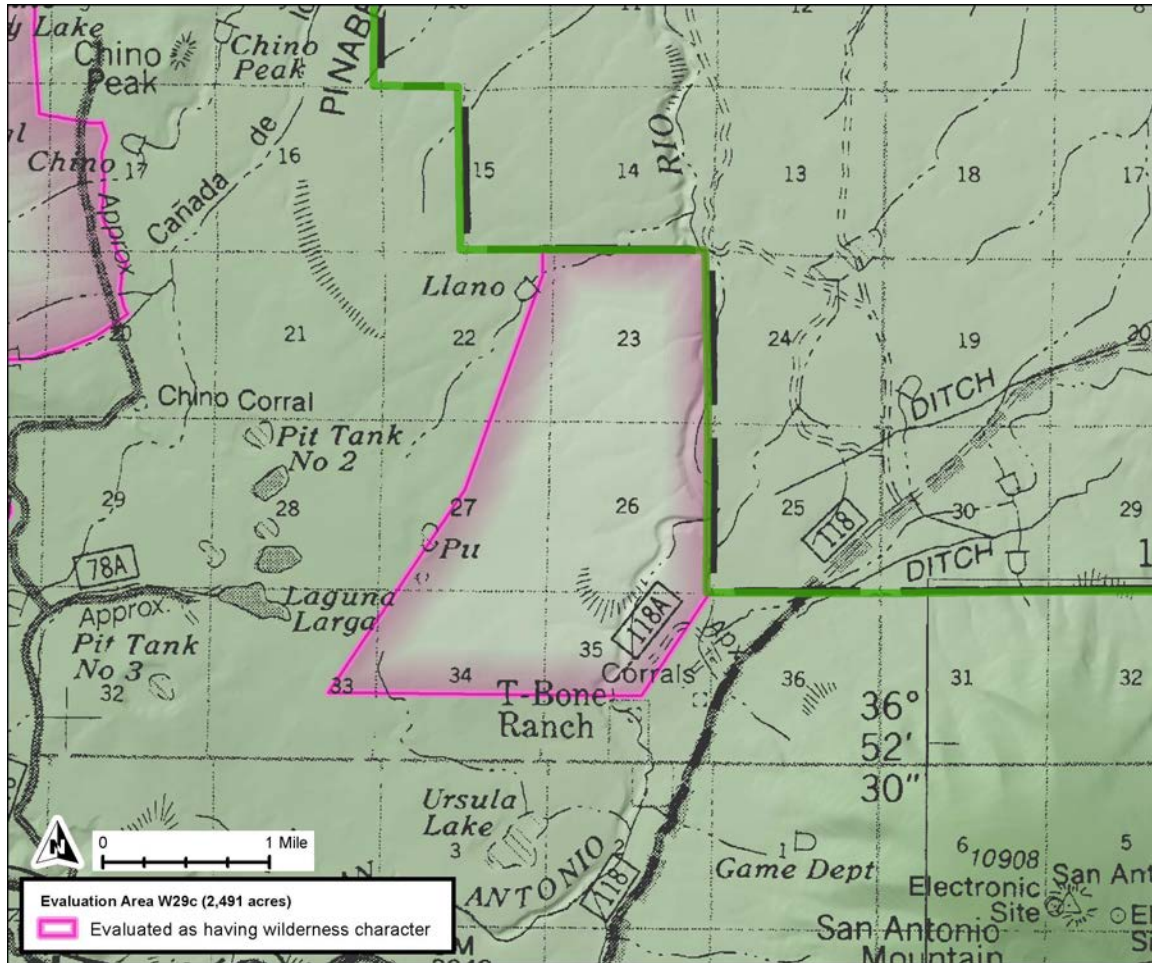
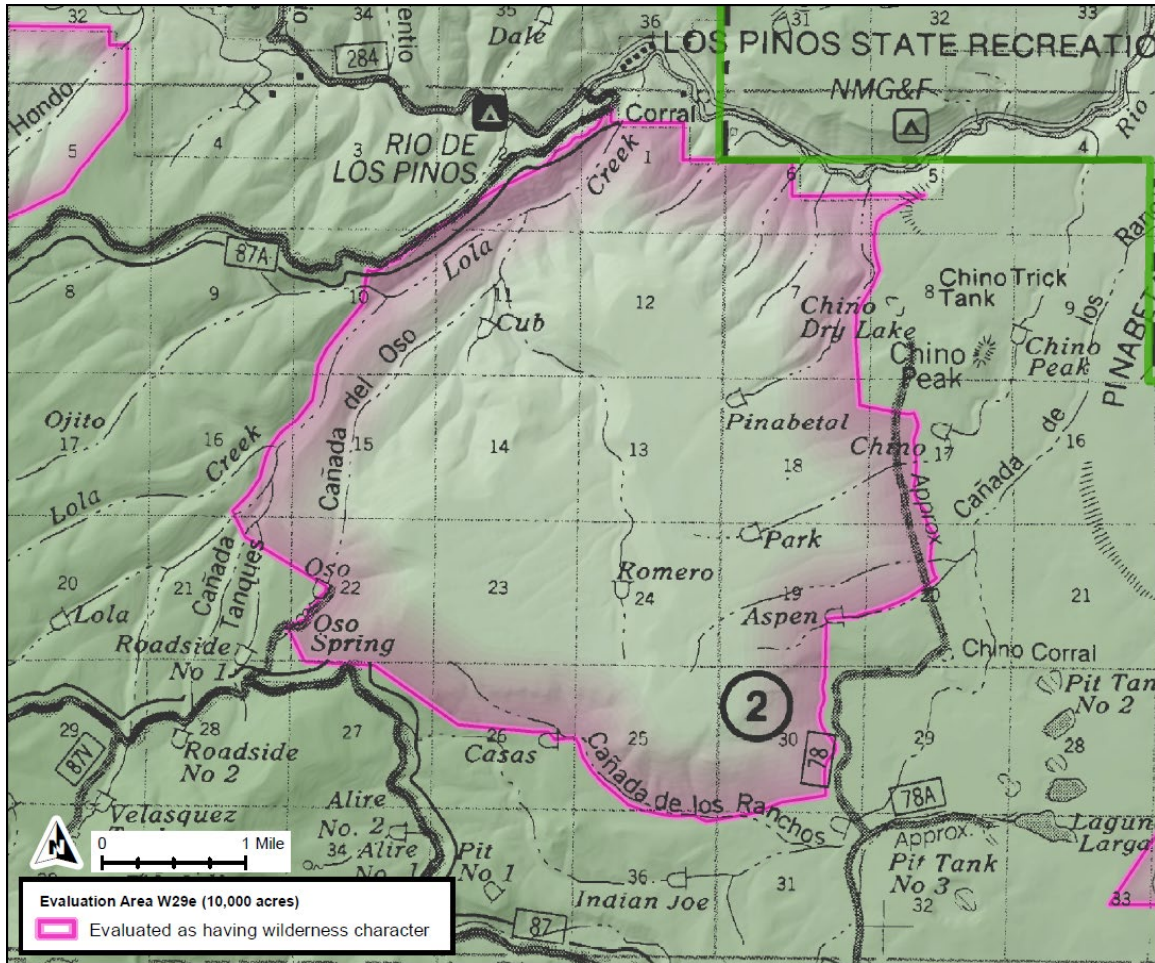


Figure 68. Tres Piedras North W29c evaluated as having wilderness characteristics

Within Tres Piedras North W29c, plant and animal communities appear natural and appear to reflect ecological conditions that would normally be associated with the area in the absence of human intervention. An exception are fence line impacts, which concentrate wildlife and livestock impacts and movements. At certain times of year evidence of trailing and different utilization levels may be apparent. Infrastructure other than fencing is rare inside the area and does not significantly detract from apparent naturalness. Opportunities exist to engage in primitive recreation including: hiking, viewing natural landscapes, and wildlife viewing. Human activities are rare at some times during the year, providing opportunities to feel alone in parts of the area. Outstanding values include the Rio San Antonio Canyon geology.

### Tres Piedras North (W29e)



**Figure 69. Tres Piedras North W29e evaluated as having wilderness characteristics**

With Tres Piedras North W29e, plant and animal communities appear natural and appear to reflect ecological conditions that would normally be associated with the area in the absence of human intervention. Infrastructure in the area is rare and only detracts from apparent naturalness in confined, surrounding areas. There are opportunities to engage in primitive and unconfined recreation including: hiking, horseback riding, viewing natural landscapes, and wildlife viewing. Human activities are uncommon at some times of year, providing opportunities to feel alone. Other outstanding values have been identified.

## Analysis

As required by the 2012 National Forest System Land Management Planning Regulations (planning rule) the Carson National Forest has completed both the [inventory and evaluation](#) of lands to determine if they have wilderness characteristics. The result are in 13 areas, totaling 67,996 acres, which were evaluated as having wilderness characteristics. That is approximately 8 percent of inventoried lands and 5 percent of the entire Carson National Forest. These lands have characteristics that could make them appropriate to include in the National Wilderness Preservation System. The third step, prior to recommending any lands for inclusion in the National Wilderness Preservation System is to analyze the effects that any wilderness recommendation would have on the ecological, social, and economic landscape (Forest Service's Land Management Planning Handbook (FSH 1909.12, Chapter 70)).

Based on the evaluation and input from the public, the Responsible Official determined that the 13 areas on the Carson National Forest with wilderness characteristics would be carried forward for analysis in one or more of the alternatives in the draft environmental impact statement. In this document and for the remainder of the Wilderness Recommendation Process (FSH 1909.12, Chapter 70) these 13 areas are referred to as areas evaluated as having wilderness characteristics. Areas evaluated as having wilderness characteristics are not recommended wilderness, as no wilderness would be recommended until a record of decision has been made for the revised forest plan.

The following section will discuss how each of the 13 areas evaluated as having wilderness characteristics are incorporated into alternatives as recommended wilderness management areas. For each area evaluated as having wilderness characteristics that are included in one or more alternatives, the following criteria will be identified for each areas evaluated with wilderness characteristic by alternative:

1. Name of the area and number of acres in the area to be considered for recommendation.
2. Location and a summarized description of a recommended boundary for each area. To identify a clearly defined boundary for each area, how well the location of the boundary will support management of the area for wilderness and other adjacent uses is evaluated. Where possible, boundaries should be easy to identify and to locate on the ground. Potential boundaries may be identified as follows, listed in descending order of desirability:
  - a. Use of natural features that are locatable both on the map and on the ground. Examples include, but are not limited to perennial streams, well-defined ridges, mountain peaks, and well-defined natural lake shorelines. If a stream is used, note whether the thread (centerline of a stream) or either bank (to mean high water line) has been used as the boundary.
  - b. Use of human-made features that are locatable on the map and on the ground. Examples include, but are not limited to roads, trails, dams, powerlines, pipelines, and bridges. Where a human-made feature is used, note whether the feature itself forms the boundary or whether the boundary has been set back from the feature, and by what distance. Setbacks should be used only where necessary for future maintenance of the human-made feature.
  - c. Use of previously surveyed lines or legally determined lines such as section and township lines, section subdivision lines, metes and bounds property lines, county or State boundaries, or National Park or Indian Reservation boundaries.
  - d. Use of a straight line from one locatable point to another. These points should normally be high points in the landscape as they must be visible to be effective.

- e. Use of a series of bearings and distances between locatable points as in a metes and bounds survey. Use this technique when other methods are not available or practicable.
3. A brief description of the general geography, topography, and vegetation of the recommended area.
4. A brief description of the current uses and management of the area.
5. A description of the area's wilderness characteristics and the ability to protect and manage the area so as to preserve its wilderness characteristics.
6. A brief summary of the factors considered and the process used in evaluating the area and developing the alternative(s).
7. A brief summary of the ecological and social characteristics that would provide the basis for the area's suitability for inclusion in the National Wilderness Preservation System.

The identification of above criteria and effects any recommended wilderness would have on the ecological, social, and economic landscape are discussed by alternative in the Draft Environmental Impact Statement, and are not discussed within this appendix.

## Areas Evaluated as having Wilderness Characteristics Alternative Development

What follows is a discussion of each alternative being analyzed in the draft environmental impact statement and how each of the 13 areas with wilderness characteristics fit within each alternative (table 55). The planning team, with involvement from the 19 cooperating agencies assisting in the revision of the forest plan and input from the Carson National Forest leadership team, proposed to the Responsible Official which of the alternatives each area best fit within.

**Table 55. Areas evaluated as having wilderness characteristics acres by alternative**

<b>Name and ID (total acres)</b>	<b>Alternative 1 acres (percent)</b>	<b>Alternative 2 acres (percent)</b>	<b>Alternative 3 acres (percent)</b>	<b>Alternative 4 acres (percent)</b>	<b>Alternative 5 acres (percent)</b>
Valle Vidal Q4g (9,261 acres)	0 (0%)	5314 (57%)	0 (0%)	9,361 (100%)	9,361 (100%)
Midnight Meadow and Mallette Canyon Q5n (1,165 acres)	0 (0%)	1,165 (100%)	0 (0%)	0(0%)	1,165 (100%)
Camino Real South C14v: (12,602 acres)	0 (0%)	0 (0%)	0 (0%)	5,057 (40%)	12,597 (100%)
Camino Real South C14x (2,340 acres)	0 (0%)	0 (0%)	0 (0%)	0(0%)	2,340 (100%)
Tres Piedras North W17f (1,675 acres)	0 (0%)	0 (0%)	0 (0%)	1,675 (100%)	1,675 (100%)
Tres Piedras North W17k (2,670 acres)	0 (0%)	1,038 (39%)	0 (0%)	2,670 (100%)	2,670 (100%)
Tres Piedras North W27a (7,117 acres)	0 (0%)	0 (0%)	0 (0%)	7,117 (100%)	7,117 (100%)
Tres Piedras North W29c (2,488 acres)	0 (0%)	1,569 (76%)	0 (0%)	2,491 (100%)	2491 (100%)
Tres Piedras North W29e (10,048 acres)	0 (0%)	0 (0%)	0 (0%)	10,000 (100%)	10,000 (100%)
Rio Chama CrW5b (77 acres)	0 (0%)	82 (100%)	0 (0%)	82 (100%)	82 (100%)
Rio Chama CrW6c (21 acres)	0 (0%)	21 (100%)	0 (0%)	21 (100%)	21 (100%)
Ghost Ranch W21d (11,479 acres)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	11,479 (100%)
Sierrita de Canjilon W32a (6, 998 acres)	0 (0%)	0 (0%)	0 (0%)	6,998 (100%)	6,998 (100%)
<b>Total Acres</b>	0 (0%)	9,189 (14%)	0 (0%)	45,473 (67%)	67,996 (100%)

### Alternative 1, No Action – Current Forest Plan (1986)

This alternative would continue existing forest plan direction and management. Under the current forest plan, many ecological resources (vegetation, riparian areas, grasses, and soils) are currently departed from historical conditions and are in need of restoration. Fire-dependent ecosystems are departed and prone to uncharacteristic, stand-replacing wildfire; grass communities and understories are less productive than they were historically; soil function is reduced on much of the forest; and aquatic and riparian ecosystems are functioning, but many are impaired. The forest's ability to contribute to social, cultural, and economic

resources is impaired, due to a loss of available forage for livestock and wildlife; sustainable recreation opportunities that do not meet the needs of forest users; and departure of vegetation and water resources that has reduced our ability to provide for traditional uses. The current forest plan includes only those areas currently designated as wilderness; and did not include recommended wilderness.

Areas evaluated as having wilderness characteristics were not included in this alternative.

## **Alternative 2, Proposed – Draft Proposed Forest Plan**

This alternative would provide management that balances restoration of ecological resources with providing ecosystem services. The draft proposed forest plan defines desired characteristics for forested ecosystems, including species composition; structural elements, such as tree spacing, density, and grouping; and disturbance regimes, including frequency, severity, intensity, and extent, through a balanced approach of mechanical thinning and fire. Wildlife habitat and connectivity for maintaining at-risk species is emphasized. The draft proposed forest plan defines desired conditions and includes objectives and strategies for restoring and protecting springs, wetlands, and other natural waters that maintain function, habitat, and water quality. The draft proposed forest plan defines desired conditions to increase grass production and availability and maintain or improve soil condition and function. There is an increased focus on riparian management and stream restoration; the draft plan works to decommission or eliminate old forest roads and routes, while maintaining appropriate access for the public. Recreation opportunities and improvements in recreation infrastructure are emphasized. Lastly, the draft proposed plan puts a greater emphasis on traditional communities and uses, recognizing the importance of forest management to contributing to cultural, social, and economic needs.

A total of 9,189 acres of area evaluated as having wilderness characteristics (14 percent of areas evaluated as having wilderness characteristics) are included in this alternative. The areas evaluated as having wilderness characteristics included in this alternative are those areas where the protection of wilderness characteristics: 1) would not limit management activities for restoration of fire-dependent ecosystems (ponderosa pine forests and dry mixed conifer) and water resources; 2) would not limit the important ecosystem services (e.g., mountain biking tourism, and fuelwood gathering) that this area provides for local communities; and (3) the area boundary is easily identifiable based on existing natural features, locatable human-made features, or existing surveyed lines.

Areas evaluated as having wilderness characteristics included in this alternative (figure 70) for analysis as potential wilderness are:

- Midnight Meadow and Mallette Canyon Q5n (1,165ac) – This area evaluated as having wilderness characteristics is not a highly-departed, fire-dependent ecosystem or an important area for providing ecosystem services and is adjacent to the Latir Wilderness.
- Tres Piedras North W17k partial (1,038ac) – This area evaluated as having wilderness characteristics is not a highly-departed, fire-dependent ecosystem or an important area for providing ecosystem services. The Continental Divide Trail runs through 24 ac and were excluded. The area boundary is now easily identifiable based on existing natural features, locatable human-made features, or existing surveyed lines.
- Valle Vidal Q4g partial (5,314ac) – This partial area evaluated as having wilderness characteristics is not a highly-departed, fire-dependent ecosystem or an important area for providing ecosystem services. There are 3,986 ac that are highly-departed, fire-dependent ecosystems and are excluded. The area boundary is now easily identifiable based on existing natural features, locatable human-made features, or existing surveyed lines.

- Tres Piedras North W29c (1,569ac) – The area boundary is now easily identifiable based on existing natural features, locatable human-made features, or existing surveyed lines. This area evaluated as having wilderness characteristics is not a highly-departed, fire-dependent ecosystem or an important area for providing ecosystem services.
- Rio Chama CcW5b (82ac) and Rio Chama CrW6c (21 ac) – These areas evaluated as having wilderness characteristics are not highly departed, fire-dependent ecosystems or important areas for providing ecosystem services.

The areas evaluated as having wilderness characteristics not included in this alternative are:

- Camino Real South C14x, Camino Real South C14v, Tres Piedras North W17F, Tres Piedras North W27a, Tres Piedras North W29e, Ghost Ranch W21d, and Sierrita de Canjilon W32a were not included as areas evaluated as having wilderness characteristics in this alternative as these areas are mostly highly-departed, fire-dependent ecosystems or important areas for providing ecosystem services such as fuelwood gathering, mountain biking on the Continental Divide trail, etc.

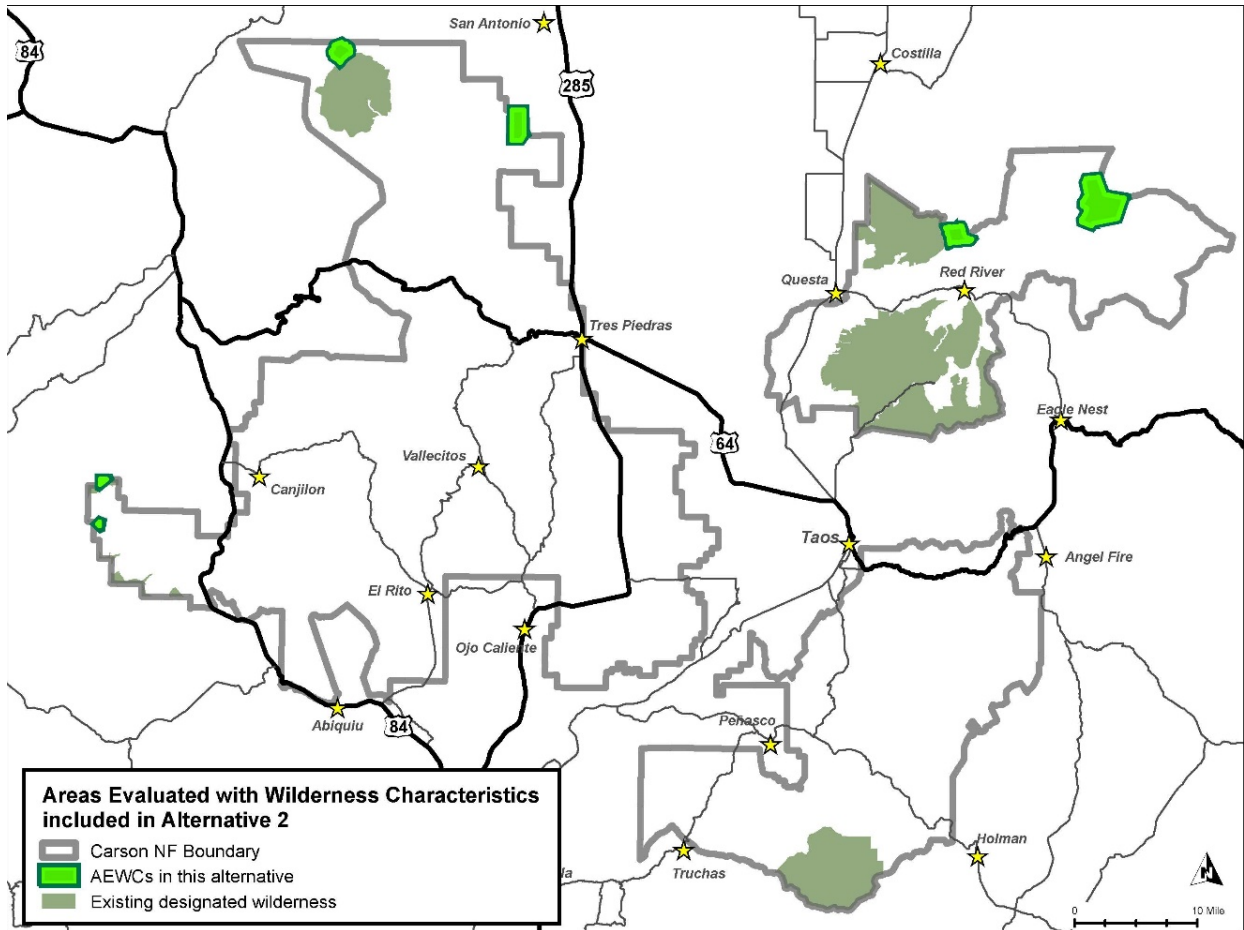


Figure 70: Alternative 2 areas evaluated with wilderness characteristics

### Alternative 3 – Emphasizes Utilization of Forest Resources

This alternative would emphasize recreation opportunities; motorized access for forest users; and increased opportunities for access and use for traditional users and for commercial timber harvesting for local businesses. Habitat and connectivity for at-risk species, watershed restoration and riparian rehabilitation, and vegetation treatments to decrease the risk of fire and improve forest and watershed

health are still important, but are not the emphasis of this alternative. The emphasis is on utilization, which may result in less decommissioning of roads, trails, and routes, a greater emphasis on road and trail maintenance, an increased trail system, and more opportunities for motorized recreation. This alternative has an increased emphasis on mechanical thinning and timber harvest to support local economies and uses less fire as a management tool. Forest product removal would require more temporary roads.

Utilization of forestlands is the intent of this alternate, and protection of wilderness characteristics would limit management activities proposed under this alternative. As such, no areas evaluated as having wilderness characteristics are included in this alternative.

## **Alternative 4 – Emphasizes Natural Processes**

This alternative places a greater emphasis on preserving the ecological integrity of forest lands. It allows for natural fires to burn, emphasizes prescribed fire as a restoration management tool, and decreases the amount of mechanized thinning. The management areas in this alternative have all been removed as suitable for timber, decreasing opportunities for fuelwood and timber harvesting. It provides greater protections for water resources, specifically key wetlands, and protections for wildlife movement, specifically wildlife migration routes for big game, and protection areas for Rio Grande Cutthroat Trout. It recognizes the value of, and has protections for, the Valle Vidal area. This alternative provides for greater effort to decommission both forest and non-system roads, reduce or eliminate temporary roads, and reduce the number of forest service system and non-system roads as well as temporary roads. There is a decreased emphasis on motorized use, both winter cross-country and motor vehicle use.

Recommended wilderness is generally compatible with this alternative. A total of 45,473 acres of areas evaluated as having wilderness characteristics (67 percent of areas evaluated as having wilderness characteristics) are included in this alternative. Partial or whole areas evaluated as having wilderness characteristics included in this alternative are those areas where protection of wilderness characteristics would limit commercial timber harvest or motorized use that could otherwise occur. Areas evaluated as having wilderness characteristics were included in this alternative if the area was: 1) outside an inventoried roadless area, or 2) within an inventoried roadless area where motorized trail or snowmobile use is allowed. The areas evaluated as having wilderness characteristics included in this alternative (figure 71) for analysis as recommended wilderness are:

- Valle Vidal Q4g (9,361ac) is not within inventoried roadless area, therefore protection of wilderness characteristics would limit commercial timber harvest or motorized use.
- Tres Piedras North W27a (7,117ac) is not within inventoried roadless area, therefore protection of wilderness characteristics would limit commercial timber harvest or motorized use.
- Tres Piedras North W29c (2,491ac) is not within inventoried roadless area, therefore protection of wilderness characteristics would limit commercial timber harvest or motorized use.
- Tres Piedras North W29e (10,000ac) is not within inventoried roadless area, therefore protection of wilderness characteristics would limit commercial timber harvest or motorized use.
- Rio Chama CrW5b (82ac) is not within inventoried roadless area, therefore protection of wilderness characteristics would limit commercial timber harvest or motorized use.
- Rio Chama CrW6c (21ac) is not within inventoried roadless area, therefore protection of wilderness characteristics would limit commercial timber harvest or motorized use.
- Tres Piedras North W17f (1,675ac) is within inventoried roadless area, but motorized snowmobile use occurs within the roadless area.

- Tres Piedras North W17k (2,670ac) is within inventoried roadless area, but motorized snowmobile use occurs within the roadless area.
- Sierrita de Canjilon W32a (6,998ac) is within inventoried roadless area, but motorized snowmobile use occurs within the roadless area.
- Camino Real South C14v partial (5,057ac) is not within inventoried roadless area, therefore protection of wilderness characteristics would limit commercial timber harvest or motorized use.

The areas evaluated as having wilderness characteristics not included in this alternative are:

- Camino Real South C14 v partial (7,540 acres or 60 percent), Ghost Ranch W21d, Midnight Meadow and Mallette Canyon Q5n, and Camino Real South C14x are within inventoried roadless areas, which limits timber harvest and these inventoried roadless areas contain no motorized use (no motorized trails or snowmobile use). These areas do provide traditional and cultural uses (e.g., grazing, hunting, and herb gathering) and are watersheds for downstream communities. These are not areas where fire is likely to be used as a management tool.

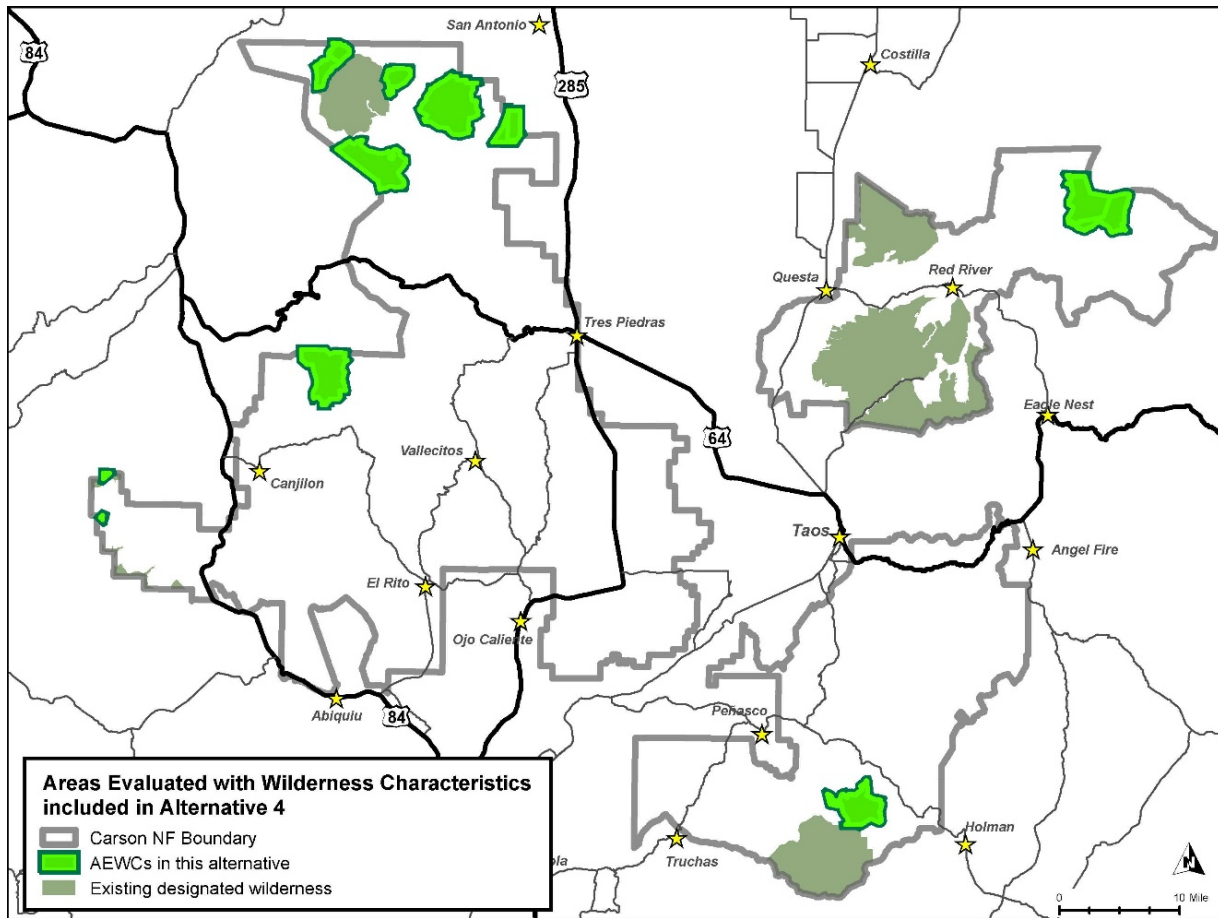
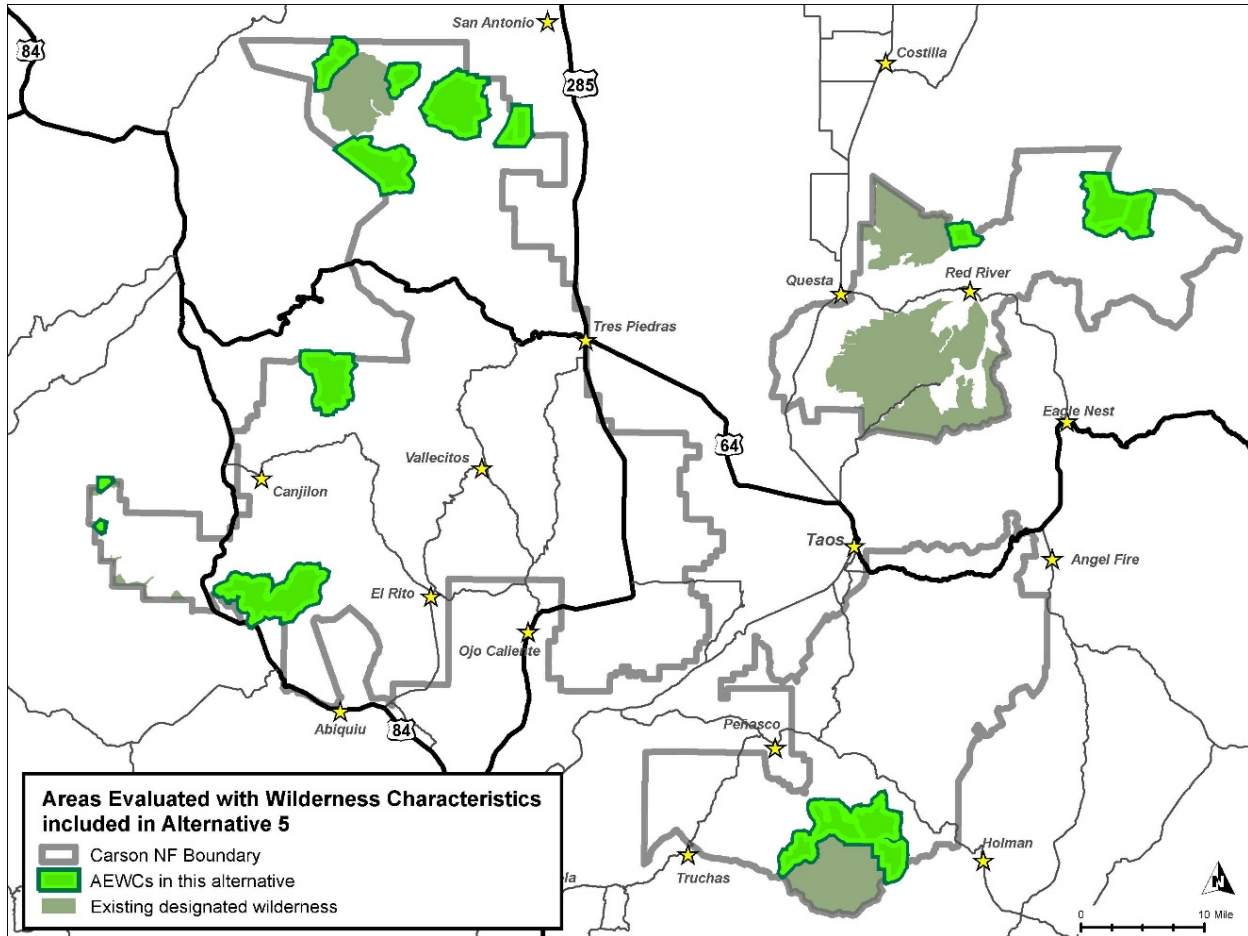


Figure 71: Alternative 4 areas evaluated with wilderness characteristics

## Alternative 5 – Emphasizes Increased Wilderness Opportunities

This alternative would emphasize maximum wilderness opportunities. As such, all areas evaluated as having wilderness characteristics were included in this alternative for a total of 67,996 acres (figure 72).



**Figure 72: Alternative 5 areas evaluated with wilderness characteristics**

Refer to volume 1 of this DEIS for the analysis of these areas evaluated as having wilderness characteristics as recommended wilderness by alternative.

# Appendix G – Wild and Scenic River Eligibility

## Wild and Scenic Rivers Act Background

The National Wild and Scenic Rivers System (National System) was enacted by Congress in 1968 (Public Law 90-542) to preserve the free-flowing condition of certain selected rivers with outstandingly remarkable values for the enjoyment of present and future generations. Designated wild and scenic rivers “must be administered in such a way as to protect and enhance the values that made [them] eligible for the National System, but not to limit other uses that do not substantially interfere with public use and enjoyment of these values.” (IWSRCC 1998, p. 3). To be designated under the National Wild and Scenic Rivers Act<sup>9</sup> a river segment must meet two fundamental requirements: (1) the river segment must be “free-flowing” as defined by Section 16(b) of the Wild and Scenic Rivers Act, and (2) the river segment must have one or more outstandingly remarkable values (Section 1(b)).

Rivers may be designated by Congress or, if certain requirements are met, the Secretaries of the Interior or Agriculture, as appropriate. Once designated under the Wild and Scenic Rivers Act, rivers receive special management direction that ensures the maintenance of the free-flowing nature and the outstanding natural, cultural, and recreational values of the river segment. Under the Wild and Scenic Rivers Act Section 2(b), river segments are required to be classified as wild, scenic, or recreational:

Wild river areas – Those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted. These represent vestiges of primitive America.

Scenic river areas – Those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads.

Recreational river areas – Those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past.

The Wild and Scenic Rivers Act Section 5(d)(1) requires that, “consideration shall be given by all Federal agencies involved to potential national wild, scenic and recreational river areas” during land management planning. To meet this requirement, the Carson National Forest is conducting a systematic evaluation of all river segments to determine if they are eligible for designation under the Wild and Scenic Rivers Act. Prior to being recommended to Congress as potential additions to the National System, eligible rivers must also be found to be suitable for designation. Both eligible and suitable segments are managed to maintain their free-flowing nature and outstandingly remarkable values, until such time as they are designated under the Wild and Scenic Rivers Act or released from consideration.

## Eligibility Evaluation Process

Wild and scenic river eligibility is being conducted as part of forest plan revision, consistent with the 2012 planning rule final directives at Forest Service Handbook (FSH) 1909.12, section 82.2, which state:

Unless a systematic inventory of study rivers has been completed and eligible rivers identified, the Interdisciplinary Team shall develop and conduct a comprehensive inventory and evaluation

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<sup>9</sup> 16 U.S. Code Chapter 28

to determine which rivers are eligible for inclusion in the National System....The rivers to be studied for eligibility include all rivers named on a standard U.S. Geological Survey 7.5 minute USGS quadrangle map.

A total of 217 rivers on the Carson National Forest are being evaluated for eligibility.<sup>10</sup> There are 192 rivers that must be included for evaluation, since they are named on a quadrangle map. Of those, 125 were evaluated for eligibility by the Carson between 1994 and 2001. In 2002 the 1986 plan was amended to include language for managing the eligible rivers and river segments. No eligibility determinations have been made since. The previous eligibility evaluation processes did not fulfill the evaluation requirements under the 2012 planning rule directives (FSH 1909.12, chapter 80). For example, (1) the previous evaluation did not involve the public in the evaluation of rivers; (2) the region of comparison was not explicitly defined; (3) some outstandingly remarkable values and eligibilities were identified on private lands; (4) some descriptions of outstandingly remarkable values were not specific; and (5) the effect of existing diversions such as acequias and community water supplies on free flow was not adequately considered. Since not all rivers have been evaluated and previous evaluations were insufficient under the 2012 planning rule, the Carson is reevaluating all 192 named rivers for eligibility during the current plan revision process. Compared to the previous evaluation, this consistent and complete evaluation is better aligned with the intent of the Wild and Scenic Rivers Act, provides clearer management direction, and better protects the values that provide the basis for eligibility.

The previous Carson eligibility evaluations considered an additional 41 rivers that are unnamed; therefore, they are not required to be reconsidered. Of those, 25 were previously determined to be eligible and are being reevaluated under this process. The 16 unnamed, intermittent streams that were previously evaluated and found not eligible were not reevaluated. The current evaluation includes 192 named streams and 25 unnamed streams that were previously eligible, for a total of 217.

The determination of eligibility is based on the river's "free-flowing" character and outstandingly remarkable values that are regionally or nationally conspicuous examples that are among the best representatives of a feature (FSH 1909.12, sec. 82.71 and 82.73).

## Free-Flowing Determination

The overarching intent of the Wild and Scenic Rivers Act is to preserve free-flowing rivers in their natural condition. To be eligible, a river must be free-flowing as defined in the Wild and Scenic Rivers Act Section 16(b):

"Free flowing" as applied to any river or section of a river means existing or flowing in a natural condition without impoundment, diversion, straightening, riprapping, or other modification of the waterway. The existence, however, of low dams, diversion works, or other minor structures at the time any river is proposed for inclusion in the [National System] shall not automatically bar its consideration for such inclusion.

Impoundment is defined as, "A body of water formed by any manmade structure." (947 FR 39456 (Sept 7, 1982)) Modification of the waterway may include any project that involves "a measurable alteration of

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<sup>10</sup> Some of those rivers are broken into multiple segments (smaller sections of one named river) with different eligibility or classification. For example, a road may parallel the bottom half (section 1) of a river, but not the top half (section 2). Both sections may be found eligible, but the classification of section 1 may be recreational while the classification for section 2 may be wild. Thus, one river was evaluated and found eligible. Two river sections were evaluated separately and both were found eligible, but assigned different classifications. There are 255 river segments being evaluated. 180 of those segments were previously evaluated. There are 8 segments that have been added to this evaluation that were not previously evaluated, despite the rest of the river having been previously evaluated.

the bed and banks of the river” (*Sierra Club North Star Chapter v. Pena*, 1 F. Supp. 2d 971 (D. Minn. 1998)), however, there is no clear threshold for when a project may adversely affect a river’s free-flowing characteristics (Wild and Scenic Rivers Act sec. 7, p 37) and Congress has “implicitly delegated the task of deciding what constitutes a ‘water resources project’ to the [agency]” (*Sierra Club North Star Chapter v. Pena*, 1 F. Supp. 2d 971 (D. Minn. 1998)).

For this evaluation, any damming, diversion, channelization, or other confinement or rerouting of the channel was considered in the context of the river system as a whole. To be considered free-flowing, a river needed to maintain its natural stream functions, including a natural flood regime, natural sinuosity and channel shifting, natural bank erosion, and natural bed load and debris movement. There is no requirement for a minimum flow or temporal or spatial continuity of flow. Flow must only be sufficient to sustain or compliment the outstandingly remarkable values for which the river would be recommended.

## Outstandingly Remarkable Value Determination

According to the Wild and Scenic Rivers Act, for a river to be eligible the river and its adjacent land area must have one or more outstandingly remarkable scenic, recreational, geologic, fish, wildlife, historic, cultural, or other similar value.

To be identified as outstandingly remarkable, a river-related value must be a unique, rare, or exemplary feature that is significant when compared with similar values from other rivers at a regional or national scale. Unique, rare, or exemplary features are those that are conspicuous examples of these values, among the best representatives of these features, within a region or the nation.

While the spectrum of resources that may be considered is broad, all features considered should be directly river-related [and] should meet at least one of the following criteria:

1. Be located in the river or its corridor,
2. Contribute substantially to the functioning of the river ecosystem, or
3. Be river dependent and owe their location and existence to the presence of the river. (FSH 1909.12, sec. 82.73)

The determination that a river area does or does not contain one or more outstandingly remarkable values is a professional judgement on the part of the Responsible Official, as informed by the Interdisciplinary Team, best available scientific information, and public participation (FSH 1909.12, sec. 82.73).

Because a feature is rare or unique does not alone make it outstandingly remarkable. It must also be conspicuously dissimilar from the class of feature to which it belongs. That is, just being an example of a type of feature that is remarkable is insufficient, the feature must be an outstandingly remarkable example of the type. For example, river-based recreation opportunities are rare in the arid southwest. To be outstandingly remarkable, the recreational opportunity must be an unusually exemplary example among arid rivers. Every archeological site is inherently unique and irreplaceable. To be outstandingly remarkable, an archeological site must be of a quality or extent such that it is among the best examples of a historical resource.

River values must be judged in comparison with the characteristics of other similar regional rivers. These similar regional rivers define the “region of comparison”. The region of comparison may vary for different categories of outstandingly remarkable values and thus, multiple regions of comparison may be used to evaluate a single river. The appropriate region of comparison is determined by the Interdisciplinary Team with input from the public and ultimately approved by the Responsible Official.

The region of comparison was not explicitly defined for previous Carson National Forest eligibility determinations; therefore, when those determinations are used as reference for this evaluation the outstandingly remarkable values must be reinterpreted in light of the region of comparison defined here. The Carson National Forest defines two regions of comparison, depending on outstandingly remarkable value category:

### **Scenery – Public Lands in Northern New Mexico and Southern Colorado**

The region of comparison for scenery includes all federal and state public lands in New Mexico and Colorado within 100 miles of the Carson National Forest.<sup>11</sup> Rivers within the proposed region of comparison have similar landscape elements of landform, vegetation, water, color, and related factors. Public lands also provide similar access for the public.

### **Recreation – Public Lands in Northern New Mexico and Southern Colorado**

Rivers within the region of comparison have similar recreational user groups and uses. Recreational uses primarily include hiking, fishing, camping, hunting, wildlife viewing, nature study, and boating. The similarity of recreational uses of rivers in the region of comparison is due to similarities in landscape setting, flow regimes, stream sizes, biological characteristics, vegetation types, and accessibility of rivers and their corridors.

### **Geology – Intersecting Physiographic Provinces**

The geology within the region of comparison has similar origin and physiography. The majority of the Carson National Forest is in the Southern Rocky Mountains or Colorado Plateaus physiographic provinces. The far eastern portion of Valle Vidal is in the Great Plains physiographic province, which extends from Mexico to Canada. The region of comparison includes the Southern Rocky Mountains and Colorado Plateaus physiographic provinces and the Raton section of the Great Plains province which intersects the Valle Vidal.

### **Fish – Intersecting Watersheds**

The 4 drainage subregions (HUC 4) that intersect the Carson National Forest make up the region of comparison for fish values. Fish populations within this proposed region of comparison are similar in terms of species composition and aquatic habitat characteristics.

### **Wildlife – Intersecting Ecoregional Provinces**

The four ecoregional provinces that intersect the Carson National Forest define the region of comparison for wildlife values. The wildlife within this proposed region of comparison are similar in terms of species composition and habitat characteristics.

### **Historic and Cultural – New Mexico and Colorado**

The region of comparison has similar history and cultural influences, encompassing ancestral Puebloan, Spanish, and American settlement influences. The prehistoric archeological record has strong ties to the Four Corners region, as well as the plains in eastern New Mexico and Colorado. Spanish influence is

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<sup>11</sup> This includes national parks, national forests and national grasslands, Bureau of Land Management lands, state parks, and state wildlife areas.

most evident throughout New Mexico and into southern Colorado. Trapping, mining, railroad expansion and American settlement were influences throughout the region.

### **Other Values – The Four Corners States (Arizona, New Mexico, Colorado, Utah)**

Based on the regions of comparison for the values listed above the Four Corners states provide a broad enough region of comparison for other values that may be considered for their outstanding remarkableness.

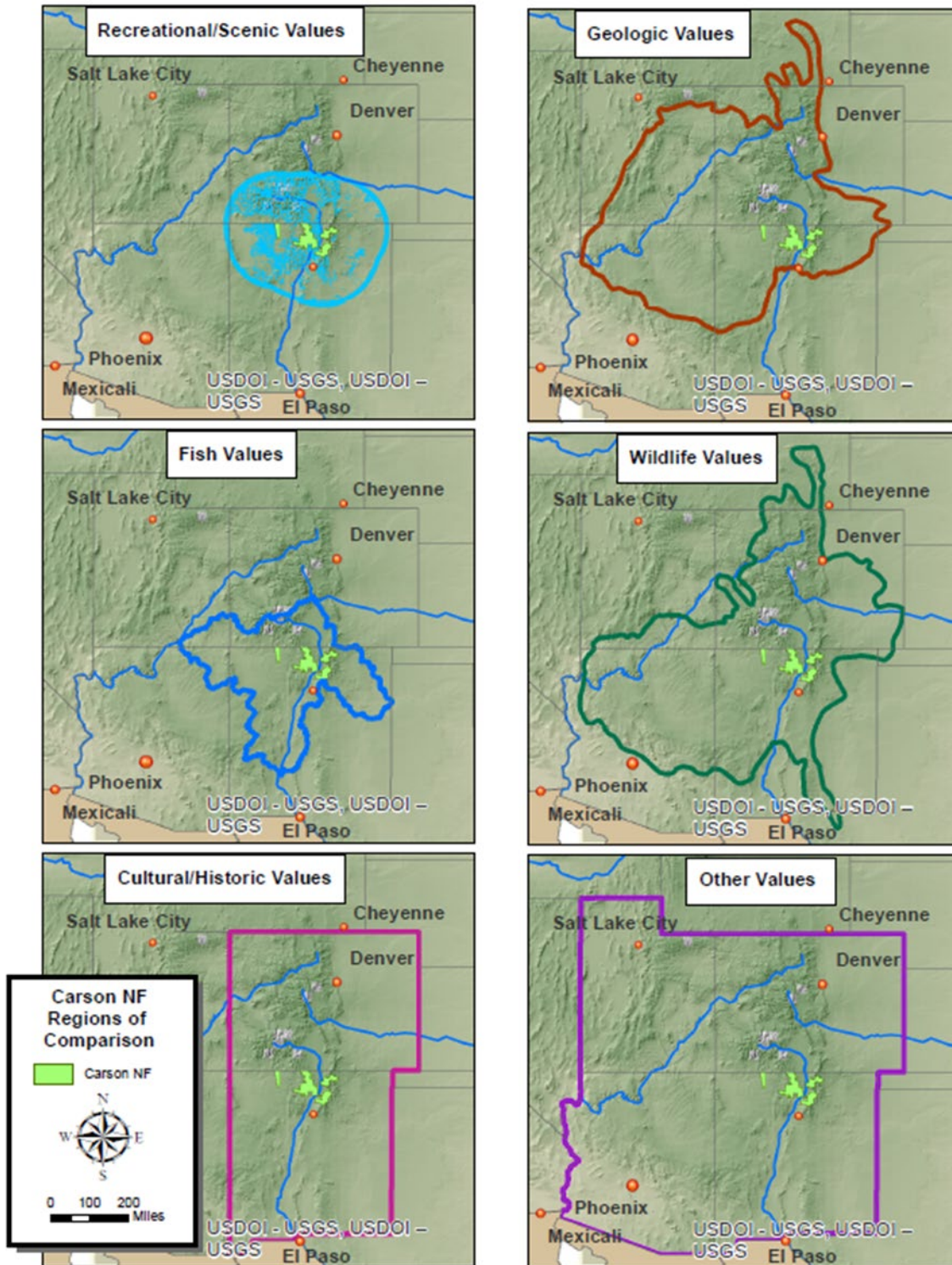


Figure 73. Carson National Forest regions of comparison for each outstandingly remarkable value

## Outstandingly Remarkable Value Criteria

The Forest Service directives establish a baseline set of criteria as minimum thresholds to establish outstandingly remarkable values (FSH 1909.12, sec. 82.73a). The Carson has made some minor adjustments to the baseline criteria, in order to clarify their application and make them more meaningful in the specific circumstances encountered in northern New Mexico (see table 56). Together, the Forest Service directives and the more specific Carson National Forest criteria describe the approach that the interdisciplinary team took when assessing values. Ultimately, the determination that a resource value is outstandingly remarkable is a professional judgement by the responsible official that it meets the definition as described in the 2012 planning rule (FSH 1909.12, sec. 82.37). The value should be directly river-related and be either located in the river or its corridor, contribute substantially to the functioning of the river ecosystem, or be river-dependent and owe its location or existence to the presence of the river (FSH 1909.12, sec. 82.73). In addition, a value must be “a unique, rare, or exemplary feature that is significant when compared with similar values from other rivers at a regional or national scale. Unique, rare, or exemplary features are those that are conspicuous examples of the values, among the best representatives of these features, within a region or the nation.” (FSH 1909.12, sec 82.73)

**Table 56. Outstandingly remarkable value evaluation criteria**

<b>Resource</b>	<b>Recommendations for Eligibility Evaluation Criteria (FSH 1909.12)</b>	<b>Carson Wild and Scenic River Eligibility Evaluation Criteria</b>
Scenic	The landscape elements of landform, vegetation, water, color, and related factors result in notable or exemplary visual features or attractions. Additional factors, such as seasonal variations in vegetation, scale of cultural modifications, and the length of time negative intrusions are viewed, may be considered. Scenery and visual attractions may be highly diverse over different parts of the river or river segment. Outstandingly remarkable scenic features may occupy only a small portion of a river corridor.	The landscape elements of landform, vegetation, water, color, and related factors result in extraordinary or exemplary visual features and attractions that provide river users with scenery that is spectacular and not common to other rivers in the region. Consider the following: Additional factors such as seasonal variations in vegetation, scale of cultural modifications, and the length of time negative intrusions are viewed. Scenery and visual attractions may be highly diverse over the majority of the river or river segment.
Recreation	Recreational opportunities are high quality and attract, or have the potential to attract visitors from throughout or beyond the region of comparison; or the recreational opportunities are unique or rare within the region. River-related opportunities include, but are not limited to, sightseeing, interpretation, wildlife observation, camping, photography, hiking, fishing, hunting, and boating. The river may provide settings for national or regional use or competitive events.	Unique, rare, or exemplary recreation opportunities are available in the river corridor. These features include the following: Exceptional fishing, hunting, hiking, camping, sightseeing, wildlife viewing (e.g. birding), rock climbing, or photography opportunities; Exceptional opportunities for solitude and to experience unaltered aquatic and riparian habitats; Exceptional opportunities for rafting or kayaking (even if on only a seasonal basis).
Geologic	The river corridor, contains one or more examples of a geologic feature, process, or phenomenon that is unique, rare or exemplary within the region of comparison. The feature(s) may be in an unusually active stage of development, represent a “textbook” example, and/or represent a unique or rare combination of geologic features	The river, or the area within the river corridor, contains one or more examples of a geologic feature, process, or phenomenon that is unique or exceedingly rare within the region of comparison. The feature(s) may be in an unusually active stage of development, represent a “textbook” example, or represent a unique or rare combination of geologic

Resource	Recommendations for Eligibility Evaluation Criteria (FSH 1909.12)	Carson Wild and Scenic River Eligibility Evaluation Criteria
	(erosional, volcanic, glacial, or other geologic structures).	features (erosional, volcanic, glacial, or other geologic structures).
Fisheries	<p>Fish values may be judged on the relative merits of either fish populations or habitat, or a combination of these river-related conditions.</p> <p>Populations. The river is nationally or regionally an important producer of resident and/or anadromous fish species. Of particular significance are a diversity of fish species or the presence of wild stocks and/or Federal or State listed or candidate threatened, endangered, or species of conservation concern.</p> <p>Habitat. The river provides uniquely diverse or high quality habitat for fish species indigenous to the region of comparison. Of particular significance is exemplary habitat for wild stocks and/or Federal or State listed or candidate threatened, endangered, or species of conservation. Consider also rare and unique habitats within the corridor.</p>	<p>Fish values may be judged on the relative merits of either fish populations or habitat, or a combination of these river-related conditions.</p> <p>Populations: The river is nationally or regionally an important producer of resident fish species. An extraordinary diversity of native fish species or the presence of genetically pure Rio Grande cutthroat trout and absence of non-native hybridizing species<sup>12</sup> would be of particular significance.</p> <p>Habitat: The river provides uniquely diverse or high quality habitat for fish species indigenous to the region of comparison.</p>
Wildlife	<p>Wildlife values may be judged on the relative merits of either terrestrial or aquatic wildlife populations or habitat, or a combination of these conditions.</p> <p>Habitat. The river, or area within the river corridor, provides uniquely diverse or high quality habitat for wildlife of national or regional significance, and/or may provide unique habitat or a critical link in habitat conditions for Federal or State listed or candidate threatened, endangered species, or species of conservation concern. Contiguous habitat conditions are such that the biological needs of the species are met.</p> <p>Populations. The river, or area within the river corridor, contains nationally or regionally important populations of indigenous wildlife species. Of particular significance are species diversity, species considered to be unique, and/or populations of Federal or State listed or candidate threatened or endangered species, or species of conservation concern.</p>	<p>Wildlife values may be judged on the relative merits of either terrestrial or aquatic wildlife populations or habitat, or a combination of these conditions:</p> <p>Habitat: The river or river corridor provides uniquely diverse or uniquely high quality habitat for wildlife of national or regional significance (e.g. federal or state listed or candidate threatened or endangered species or species of conservation concern), particularly where such habitats meet the year-round or important seasonal biological needs of the species.</p> <p>Populations: The river or river corridor contains nationally or regionally important metapopulations necessary for providing diversity, resiliency, or redundancy. Consider the following species:</p> <p>At risk riparian-dependent species: Other indigenous wildlife species, particularly federal or state listed or candidate threatened or endangered species, or species of conservation concern.</p>
Historical	<p>The river, or area within the river corridor, contains important evidence of occupation or use by humans. Sites may have national or regional importance for interpreting history or prehistory.</p> <p>History. Site(s) or feature(s) associated with a significant event, an important person, or a</p>	<p>The river, or area within the river corridor, contains important evidence of historic or pre-historic occupation or use by humans. Sites may have regional or national importance for interpreting history or prehistory and are exemplary or unusually intact. Many such sites</p>

<sup>12</sup> Rio Grande cutthroat trout are native only to the Rio Grande, Pecos, and Canadian River drainages and thus are considered rare regionally and nationally. However, they occur in many streams in the four drainage subregion region of comparison. Most of these streams also contain non-native trout species (i.e., brown and rainbow trout) that interbreed and compete with Rio Grande cutthroat trout. On the Carson National Forest, Rio Grande cutthroat trout populations are only considered an outstandingly remarkable value where non-native species are not present, a full barrier is in place, Rio Grande cutthroat trout genetics are unaltered (no more than 10% introgression) or are suspected to be unaltered according to NM Department of Game and Fish data, and the stream is connected to a large network of streams that provide redundant, high-quality Rio Grande cutthroat trout habitat.

Resource	Recommendations for Eligibility Evaluation Criteria (FSH 1909.12)	Carson Wild and Scenic River Eligibility Evaluation Criteria
	<p>cultural activity of the past that was rare or one-of-a-kind in the region. A historic site or feature, in most cases, is 50 years old or older.</p> <p>Pre-history. Sites may have unique or rare characteristics or exemplary human interest value; represent an area where a culture or cultural period was first identified and described; may have been used concurrently by two or more cultural groups, or may have been used for rare sacred purposes.</p>	<p>are listed on the National Register of Historic Places.</p> <p>History: Site(s) or feature(s) are associated with a significant event, an important person, or a cultural activity of the past that is now rare or unique in the region. Historic sites or features date to AD 1539 or later, and in most cases, are 50 years old or older.</p> <p>Prehistory: Site(s) or feature(s) associated with prehistoric human use or occupation may have unique or rare characteristics or exemplary anthropological value such as evidence of prehistoric human practices and modes of living dating prior to contact with European cultures (AD 1539).</p>
Cultural	Cultural values are combined with historical values in the recommended criteria.	As opposed to historical values, cultural values have current, ongoing religious, spiritual, or community importance, including traditional uses. Outstandingly remarkable cultural values in this context are those that are widely held in the local area, are uniquely tied to a particular river, and depend on the river's free-flowing, unaltered condition.
Other Similar Values	Not applicable	<p>Riparian: The river or river corridor contains nationally or regionally important or unique riparian systems necessary for providing extraordinarily high biodiversity, species resiliency, or species redundancy.</p> <p>Consider the following species:</p> <p>At risk riparian-dependent species</p> <p>Other indigenous species, particularly federal or state listed or candidate threatened or endangered species or species of conservation concern.</p>

## Classification of Eligible Rivers

Wild and scenic rivers are classified as either wild, scenic, or recreational (Wild and Scenic Rivers Act sec. 2(b)). River segments may have differing classifications when levels of human use and activity create different degrees of development given that each segment is of sufficient length to warrant unique management. See table 57 for criteria used for classifications. The preliminary classification of eligible rivers is based on the existing level of development in the river and surrounding area.

Each river found to be eligible must be assigned a preliminary classification. The preliminary classification of a river found to be eligible is based on the condition of the river and the development level of adjacent lands as they exist at the time of the study (FSH 1909.12 sec. 82.73).

Rivers with wild or scenic classifications are free of impoundments. Roads are absent in wild river corridors, rare in scenic river corridors, and acceptable in recreational river corridors. Wild rivers have a primitive character. Scenic rivers are undeveloped. Recreational rivers may have some development. Water quality in wild rivers must be high, but may be poor under the other two classifications.

**Table 57. Criteria for wild, scenic, and recreational classifications**

<b>Attribute</b>	<b>Wild</b>	<b>Scenic</b>	<b>Recreational</b>
Water Resource Development	Free of impoundment.	Free of impoundment.	Some existing impoundment or diversion. The existence of low dams, diversions, or other modifications of the waterway is acceptable, provided the waterway remains generally natural and riverine in appearance.
Shoreline Development	Essentially primitive. Little or no evidence of human activity. The presence of a few inconspicuous structures, particularly those of historic or cultural value, is acceptable. A limited amount of domestic livestock grazing or hay production is acceptable. Little or no evidence of past timber harvest. No ongoing timber harvest.	Largely primitive and undeveloped. No substantial evidence of human activity. The presence of small communities or dispersed dwellings or farm structures is acceptable. The presence of grazing, hay production, or row crops is acceptable. Evidence of past or ongoing timber harvest is acceptable, provided the forest appears natural from the riverbank.	Some development. Substantial evidence of human activity. The presence of extensive residential development and a few commercial structures is acceptable. Lands may have been developed for the full range of agricultural and forestry uses. May show evidence of past and ongoing timber harvest.
Accessibility	Generally inaccessible except by trail. No roads, railroads, or other provision for vehicular travel within the river area. A few existing roads leading to the boundary of the area are acceptable.	Accessible in places by road. Roads may occasionally reach or bridge the river. The existence of short stretches of conspicuous or longer stretches of inconspicuous roads or railroads is acceptable.	Readily accessible by road or railroad. The existence of parallel roads or railroads on one or both banks as well as bridge crossings and other river access points is acceptable.
Water Quality	Meets, or exceeds criteria, or federally approved State standards for aesthetics, for propagation of fish, and wildlife normally adapted to the habitat of the river, and for primary contact recreation (swimming) except where exceeded by natural conditions.	No criteria are prescribed by the Wild and Scenic Rivers Act. The Federal Water Pollution Control Act Amendments of 1972 have made it a national goal that all waters of the United States are made fishable and swimmable. Therefore, rivers will not be precluded from scenic or recreational classification because of poor water quality at the time of their study, provided a water quality improvement plan exists, or is being developed in compliance with applicable Federal and State laws.	No criteria are prescribed by the Wild and Scenic Rivers Act. The Federal Water Pollution Control Act Amendments of 1972 have made it a national goal that all waters of the United States are made fishable and swimmable. Therefore, rivers will not be precluded from scenic or recreational classification because of poor water quality at the time of their study, provided a water quality improvement plan exists, or is being developed in compliance with applicable Federal and State laws.

The intent of the Act, to protect a river's free-flowing condition and protect and enhance the river's outstandingly remarkable values, applies equally to all wild and scenic rivers regardless of classification. Management of an eligible river must maintain the river's classification as evaluated, unless a suitability study recommends management at a less restrictive classification. Otherwise, all eligible rivers are managed with the same intent, regardless of classification.

## Interim Management of Eligible Rivers

Certain protections are applied to eligible rivers until a decision is made on the future use of the river and adjacent lands through an Act of Congress or a change in eligibility or suitability status from a future study (FSH 1909.12, sec 84.3).

The responsible official may authorize site-specific projects and activities on National Forest System lands within eligible or suitable river corridors only where the project and activities are consistent with all of the following:

- The free-flowing character of the identified river is not adversely modified by the construction or development of stream impoundments, diversions, or other water resources projects.
- Outstandingly remarkable values of the identified river area are protected.
- For all Forest Service-identified study rivers, classification of an eligible river must be maintained as inventoried unless a suitability study is completed that recommends management at a less restrictive classification (such as from wild to scenic or scenic to recreational) (FSH 1909.12, sec. 84.2).

Forest plan components must be developed to protect the values for which a river is eligible or suitable. Plan components developed for various resource sections of the plan may provide for outcomes consistent with these required protections. Collectively, plan components must ensure that projects and activities are consistent with the following interim protection measures (FSH 1909.15, sec. 84.3):

1. **Water Resources Projects.** A water resources project is defined in 36 Code of Federal Regulations (CFR) part 297 as the construction or development of water supply dams, diversions, flood control works, and other water resources projects that affect the river's free-flowing characteristics.

Wild, Scenic, and Recreational Rivers. For Forest Service-identified (sec. 5(d)(1)) eligible or suitable rivers, water resources projects proposed on these segments are not subject to section 7(b) of the Act; however, these projects shall be analyzed as to their effect on a river's free-flow, water quality, and outstandingly remarkable values, with adverse effects to be prevented to the extent of existing agency authorities (such as special-use authority).

2. **Hydroelectric Power Facilities**

Wild, Scenic, and Recreational Rivers. Forest Service-identified eligible rivers are to be protected pending a suitability determination. Forest Service-identified suitable rivers are to be protected for their free-flowing condition, water quality, and outstandingly remarkable values pending a designation by Congress.

3. **Minerals**

- a. Wild Rivers.

- i. Locatable Minerals. Existing or new mining activity on a Forest Service-identified eligible or suitable river are subject to regulations in 36 CFR part 228 and must be

conducted in a manner that minimizes surface disturbance, sedimentation, pollution, and visual impairment.

- ii. Leasable Minerals. For all eligible or suitable rivers, leases, licenses, and permits under mineral leasing laws must include conditions necessary to protect the values of the river corridor that make it eligible or suitable for inclusion in the National System.
  - iii. Saleable Minerals. For all eligible or suitable rivers, disposal of saleable mineral material is prohibited.
- b. Scenic and Recreational Rivers.
- i. Locatable Minerals. Existing or new mining activity on a Forest Service-identified eligible or suitable river are subject to regulations in 36 CFR part 228 and must be conducted in a manner that minimizes surface disturbance, sedimentation, pollution, and visual impairment.
  - ii. Leasable Minerals. For all eligible or suitable rivers, leases, licenses, and permits under mineral leasing laws must include conditions necessary to protect the values of the river corridor that make it eligible or suitable for inclusion in the National System.
  - iii. Saleable Minerals. For all eligible or suitable rivers, saleable mineral material disposal is allowed if the values for which the river may be included in the National System are protected.

#### **4. Transportation System**

- a. Wild Rivers. Roads and railroads are generally not compatible with a wild river classification. Prevent actions related to the road system that would preclude protection of the river as wild. Do not plan roads outside of the corridor that would adversely affect the wild classification. New trail construction should generally be designed for non-motorized uses. However, limited motorized uses that are compatible with identified values and unobtrusive trail bridges may be allowed. New airfields may not be developed.
- b. Scenic Rivers. New roads and railroads are permitted to parallel the river for short segments or bridge the river if such construction fully protects river values (including the river's free-flowing character). Bridge crossings and river access are allowed. New trail construction or airfields must be compatible with and fully protect identified values.
- c. Recreational Rivers. New roads and railroads are permitted to parallel the river if such construction fully protects river values (including the river's free-flowing character). Bridge crossings and river access are allowed. New trail construction or airfields must be compatible with and fully protect identified values.

#### **5. Utility Proposals**

- a. Wild, Scenic, and Recreational Rivers. New transmission lines such as gas lines, water lines, and similar linear facilities are not compatible and are discouraged. Where no reasonable alternative exists, additional or new facilities should be restricted to existing rights-of-way. Where new rights-of-way would be necessary for a utility line, the proposed project must be evaluated as to its effect on the river's outstandingly remarkable values and classification. Any portion of a utility proposal that has the potential to affect the river's free-flowing character must be evaluated as a water resources project.

## **6. Recreation Development**

- a. Wild Rivers. As stated in the USDA-USDI Guidelines, major public-use areas such as large campgrounds, interpretive centers, or administrative headquarters must be located outside the river corridor. Minimum facilities, such as toilets and refuse containers, may be provided if necessary to protect and enhance water quality and other identified river values, while also providing for public recreation uses that do not adversely impact or degrade those values. All facilities must be located and designed to harmonize with the primitive character, natural, and cultural settings of the river corridor. The facilities must protect identified river values including water quality and be screened from view from the river to the extent possible.
- b. Scenic Rivers. Public-use facilities such as moderate-size campgrounds, simple sanitation and convenience facilities, public information centers, administrative sites, or river access developments, and so forth are allowed within the river corridor. All facilities must be located and designed to harmonize with their natural and cultural settings, protect identified river values including water quality, and be screened from view from the river to the extent possible.
- c. Recreational Rivers. Recreation, administrative, and river access facilities may be located in close proximity to the river. However, recreational classification does not require extensive recreation development. All facilities must be located and designed to harmonize with their natural and cultural settings, protect identified river values including water quality, and be screened from view from the river to the extent possible.

## **7. Motorized Travel**

- a. Wild Rivers. Motorized travel on land or water may be permitted, but is generally not compatible with this classification. Where motorized travel options are deemed to be necessary, such uses should be carefully defined and impacts mitigated.
- b. Scenic and Recreational Rivers. Motorized travel on land or water may be permitted, prohibited, or restricted to protect the river values.

## **8. Wildlife and Fish Projects**

- a. Wild Rivers. Construction of minor structures and vegetation management to protect and enhance wildlife and fish habitat should harmonize with the area's essentially primitive character and fully protect identified river values. Any portion of a proposed wildlife or fisheries restoration or enhancement project that has the potential to affect the river's free-flowing character must be evaluated as a water resources project.
- b. Scenic Rivers. Construction of structures and vegetation management designed to protect and enhance wildlife and fish habitat should harmonize with the area's largely undeveloped character and fully protect identified river values. Any portion of a wildlife or fisheries restoration or enhancement project that has the potential to affect the free-flowing character must be evaluated as a water resources project.
- c. Recreational Rivers. Construction of structures and vegetation management to protect and enhance wildlife and fish habitat should fully protect identified river values. Any portion of a wildlife or fisheries restoration or enhancement project that has the potential to affect the river's free-flowing character must be evaluated as a water resources project.

## **9. Vegetation Management**

- a. Wild Rivers. Cutting of trees and other vegetation is not permitted except when needed in association with a primitive recreation experience, to protect users, or to protect identified outstandingly remarkable values. Examples of such exceptions include activities to maintain trails

or suppress wildfires. Prescribed fire and wildfires managed to meet resource objectives may be used to restore or maintain habitat for threatened, endangered, or sensitive species or restore the natural range of variability.

- b. Scenic and Recreational Rivers. A range of vegetation management and timber harvest practices are allowed, if these practices are designed to protect users, or protect, restore, or enhance the river environment, including the long-term scenic character.

## 10. Domestic Livestock Grazing

- a. Wild Rivers. Domestic livestock grazing should be managed to protect identified river values. Existing structures may be maintained. New facilities may be developed to facilitate livestock management so long as they maintain the values for which a river was found eligible or suitable, including the area's essentially primitive character.
- b. Scenic Rivers. Domestic livestock grazing should be managed to protect identified river values. Existing structures may be maintained. New facilities may be developed to facilitate livestock management so long as they maintain the values for which a river was found eligible or suitable, including the area's largely undeveloped character.
- c. Recreational Rivers. Domestic livestock grazing should be managed to protect identified river values. Existing structures may be maintained. New facilities may be developed to facilitate livestock management so long as they maintain the values for which a river was found eligible or suitable.

## Evaluating Suitability of Eligible Rivers

Following a determination of eligibility, a river must also be found suitable prior to designation as a Wild and Scenic River. No suitability evaluations are being conducted as part of this current process. A suitability study provides the basis for determining which eligible rivers or river segments should be recommended to Congress as potential additions to the National System. Any eligible river may be studied for its suitability for inclusion in the National System at any time. If a proposed project has the potential to adversely affect the free-flow or outstandingly remarkable values of any river that has previously been determined to be eligible, the Responsible Official should study the suitability of that river for inclusion in the National System before approving the project. If the river is found suitable, then the proposed project must maintain free-flow and protect the outstandingly remarkable values.

Suitability studies address these questions (FSH 1909.12, sec. 83.2):

1. Should the river's free-flowing character, water quality, and outstandingly remarkable values be protected, or are one or more other uses important enough to warrant doing otherwise?
  - a. Will the river's free-flowing character, water quality, and outstandingly remarkable values be protected through designation?
  - b. Will the benefits of designation exceed the benefits of non-designation?
  - c. Is designation the best method for protecting the river corridor?
  - d. Is there a demonstrated commitment to protect the river by any non-Federal entities that may be partially responsible for implementing protective management?

## Wild and Scenic River Eligibility

The evaluation identified 50 river segments as eligible for inclusion in the National System of Wild and Scenic Rivers based on their free-flowing nature and associated outstanding remarkable values. These eligible rivers are shown in figure 74 and listed in table 58. River segments are listed by ranger district and identification number, and each has a description of the segment location, the segment classification, the outstandingly remarkable values for which it is eligible, the length of the segment in miles, and a narrative describing the outstandingly remarkable value and classification determination. Identification numbers are unique to each district and correspond to the river location on the eligible rivers map above (figure 74) and the district maps of all evaluated rivers (figure 75 through figure 78). An asterisk (\*) signifies rivers that are not named on a USGS 7.5 minute quad, but are being evaluated because they were previously determined to be eligible.

**Table 58. Eligible river segments and their associated classification and outstandingly remarkable values (ORVs)**

Ranger District	ID	River Segment Name	River Segment Location	Classification (ORV)	Length (miles)	Narrative Description of Outstandingly Remarkable Values
Camino Real	3	Alamitos Creek	From headwaters to FR 161D	Wild (fish)	3.4	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section.
Camino Real	4	North Fork Alamitos Creek	Headwaters to Alamitos Creek	Wild (fish)	2.6	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section.
Camino Real	6	Arroyo Hondo	From Forest boundary to Forest boundary	Scenic (geologic)	2.2	The lower Bureau of Land Management segment of Arroyo Hondo has been listed as eligible for outstandingly remarkable “geologic” values. “Staurolites,” unique geologic features, are found along this upper segment of the Arroyo Hondo. It is determined to be eligible for outstandingly remarkable “geologic” values. Scenic classification is appropriate due to a (closed) two-track road that parallels the entire segment, crossing it in several places.
Camino Real	31	Rio Santa Barbara (all three forks)	From headwaters to Jicarita Creek confluence	Wild (scenic, recreational, fish, historic)	1.9 6.9 3.5 5.7 (18.0 total)	All three forks of the Rio Santa Barbara offer outstanding scenic and recreational opportunities, because of the solitude and high alpine, primitive experience and views of the entire basin and its expansive aspen stands. The history of the Santa Barbara Pole and Tie Company is remarkable for its influence on the local communities. There is less remaining evidence in this river segment than there is in segment #53, however none of the remaining structures are remarkable themselves. It is the history of use and the way that it changed the local economy that are remarkable and those are as tied to these upper sections as they are to downstream areas. There is an old water system above the campground that impacts primitive character in that area. Above that point wild classification is appropriate.

Ranger District	ID	River Segment Name	River Segment Location	Classification (ORV)	Length (miles)	Narrative Description of Outstandingly Remarkable Values
Camino Real	49	Rio Grande del Rancho	From private land to Forest boundary	Recreational (wildlife, other)	3.5	The willow riparian vegetation is critical habitat for Southwestern willow flycatcher, though none have been recorded here since 2014. The habitat is degraded but has potential to be high quality. Equally intact and functional riparian systems may be found in the region of comparison, but it is outstandingly remarkable at least on the forest and in northern New Mexico and is considered an outstandingly remarkable value. Recreational classification is appropriate due to the highway that parallels this segment, and other development.
Camino Real	67*	Agua Caliente Canyon	From headwaters to Forest boundary	Scenic (historic, cultural)	1.5	Warm springs flows into Agua Caliente Canyon. The 1854 Battle of Cieneguilla in this canyon is historically significant, and the site is important for its historical interpretive value among battle sites in the Apache Wars of the late 1800s. The battlefield is eligible for the National Register of Historic Sites. The area around warm springs is also culturally important to many area tribes. There is unique traditional tribal importance tied to the springs, the creek, and the surrounding area. A classification of scenic is appropriate because the upper portion of the river has evidence of past timber harvest and there are many closed, inconspicuous roads that cross the river in places. The creek is confined in culverts in several locations.
Canjilon	2	Arroyo del Yeso	FR 138 to private land	Wild (scenic, recreational, geologic)	5.5	Arroyo del Yeso is the largest and most dramatic canyon in this area of the El Rito Ranger District. Steep drainages have sliced through the sandstone cliffs revealing many shades of yellow, pink, red, purple and blue-gray. The area above Ghost Ranch attracts visitors from all over the world. They come to gaze, to photograph, to paint, and to hike into the canyons. Wild classification is appropriate.
Canjilon	5	Canjilon Creek	From private land to Forest boundary	Recreational (scenic, recreational, geologic)	5.0	The scenic and recreational opportunities in this segment are outstandingly remarkable regionally. The canyon with dramatic sandstone cliffs is wider than the ¼ mile river corridor, but is dramatic and unique. The side canyons are popular for hunting and Echo Amphitheater is a unique recreational site. The Recreational classification is appropriate.
Canjilon	6	Canjilon Creek	From headwaters to fish barrier	Scenic (recreational)	5.6	Fishing for Rio Grande cutthroat trout contributes to the outstandingly remarkable recreational value. The Continental Divide Trail parallels the river for most of this segment, though it is actually old two-track road in many places. Canjilon lakes developed campground is in the river corridor, and there is significant evidence of recent timber harvest. Scenic classification is appropriate.
El Rito	3	Arroyo del Chamiso	Headwaters to Forest boundary	Recreational (scenic)	6.3	Among the intermittent Rio Chama tributaries on the El Rito Ranger District, Arroyo del Chamiso was judged to be the most outstandingly remarkable for its sandstone cliffs and steep drainages. Most visitors

Ranger District	ID	River Segment Name	River Segment Location	Classification (ORV)	Length (miles)	Narrative Description of Outstandingly Remarkable Values
						would only view the canyon from Highway 84, as it is not accessible from the bottom. There are no designated trails or open roads. Arroyo del Yeso and Arroyo del Chamiso are much larger and more dramatic than the other intermittent tributaries, and are the only two that are judged to be outstandingly remarkable. There is a closed road used by grazing permittees to access pit tanks that parallels most of this segment. There is an adjacent area that has been chained to remove piñon and juniper woodlands and create grasslands that are maintained with fire or thinning. There are 4 pit tanks in this river segment that impound water and impact the free-flowing nature of the river, therefore a recreational classification is appropriate
El Rito	11	Cañada de Chacon	From headwaters to El Rito Creek	Wild (fish)	2.3	Provides some Rio Grande cutthroat trout habitat. Populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
El Rito	32	El Rito Creek	From headwaters to fish barrier	Wild (fish)	6.1	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
El Rito	33*	Hachita Canyon	From headwaters to El Rito Creek	Wild (fish)	2.4	Provides some Rio Grande cutthroat trout habitat. Populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
El Rito	42	Rio Vallecitos	From Jarosa Creek to FR 274	Wild (scenic, recreational)	5.9	The sport fishing opportunity contributes to the recreational value but is not an outstandingly remarkable fish value. The canyon rock formations and opportunities for solitude are regionally remarkable scenic and recreational values. The Continental Divide trail crosses this segment. The center portion crosses through the private El Vallecito Ranch which is developed, but Wild classification is appropriate on national forest lands.
Jicarilla	3*	Carracas Canyon	From Forest boundary to Forest boundary	Recreational (historic)	2.6	The “wagon road” is a portion of the Northern Route of the Old Spanish Trail. There is physical evidence of constructed trail for mule trains including evidence at drainage crossings of modifications to allow for crossing by small carts or wagons. The boiler at Boiler Springs was important locally for its use to prepare for sheep dipping in the 1870s. Recreational classification is appropriate due to parallel road and mineral development.
Jicarilla	4*	La Jara Canyon	From Forest boundary to Vaqueros Canyon	Recreational (historic)	5.3	La Jara Canyon contains three Navajo Pueblito sites that are listed on the National Register of Historic Places. The canyon is also the location of a battle between the Navajo and the Spanish in 1705, during which the Spanish burned the Navajo homes and destroyed their milpas (corn

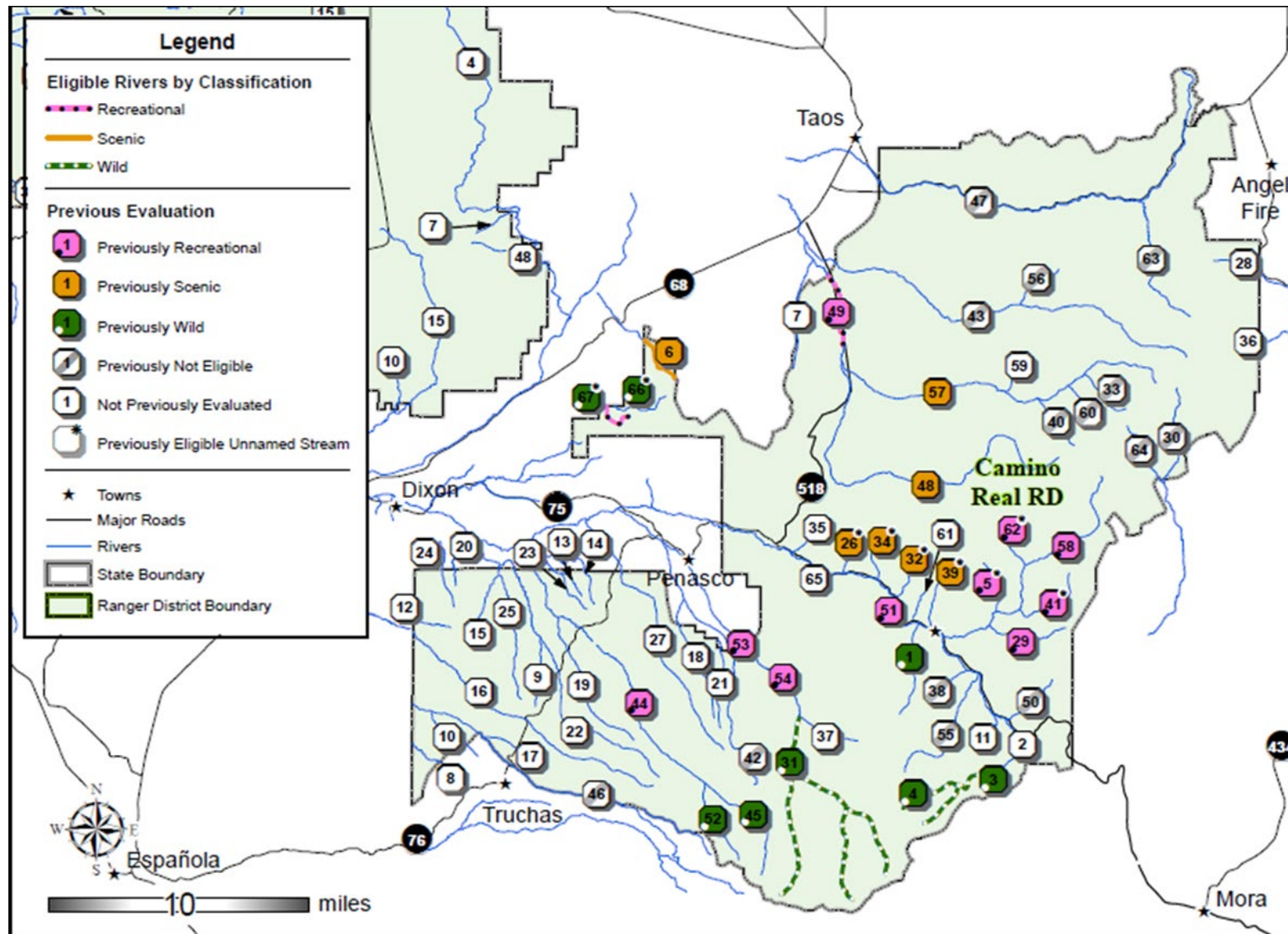
Ranger District	ID	River Segment Name	River Segment Location	Classification (ORV)	Length (miles)	Narrative Description of Outstandingly Remarkable Values
						fields). Recreational classification is appropriate due to parallel road and mineral development.
Questa	2	Bitter Creek	From headwaters to private land (section 21)	Recreational (recreational, historic)	5.1	Bitter Creek has a long history of human use and modification. It was previously dammed and there are still dams on private land below this section. The stream channel has been altered by mining and mills and subsequent remediation. It is rerouted, and, while no longer impounded, its free flow is affected. The Anchor and Midnight mine sites are historically significant, and outstandingly remarkable. The valley is remarkable for its historic value and interpretive and educational values based on the number of old mine sites. The recreational classification is appropriate.
Questa	4	Bull Creek	From headwaters to Lagunitas Fork	Wild (fish)	1.4	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
Questa	7*	Chuck-wagon Creek	From headwaters to Comanche Creek	Scenic (fish)	0.7	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. There is a culvert where FR 1950 crosses this segment. An old road (old Midnight-Chuckwagon Trail) that parallels this segment has been mostly obliterated. This segment is less than 1 mile long and almost half of it is within ¼ mile of FR 1950. Scenic classification is appropriate.
Questa	8	Columbine Creek	From headwaters to Deer Creek	Wild (fish)	3.6	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
Questa	9	Columbine Creek	From Deer Creek to Columbine trailhead	Wild (recreational)	1.3	The Columbine-Twining National Recreation Trail parallels this segment. Almost all of this segment is in the Columbine-Hondo Wilderness and wild classification is appropriate.
Questa	10	Comanche Creek	From headwaters to Costilla Creek	Recreational (scenic, recreational, geologic, fish, other)	11.6	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Geologically, Comanche Point is outstandingly remarkable. It is an example of impact melt with columnar jointing (proterozoic biotite) believed to have formed at the center of an impact crater. The wetland component is remarkable compared to other similar systems. The large valley meadows on the west side of the Valle Vidal are unusual in the region for their scenic and primitive recreational value. Recreational classification is appropriate.
Questa	11	Costilla Creek	From Forest boundary to fish barrier	Recreational (scenic,	5.8	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. The large valley meadows on the west side of the Valle Vidal

Ranger District	ID	River Segment Name	River Segment Location	Classification (ORV)	Length (miles)	Narrative Description of Outstandingly Remarkable Values
				recreational, fish)		are unusual in the region for their scenic and primitive recreational value. Recreational classification is appropriate.
Questa	64	Costilla Creek	From fish barrier to forest boundary	Recreational (scenic, recreational)	0.5	Non-native species are present below the fish barrier. The deep narrow canyon was judged to be outstandingly remarkable for scenery. This is a very popular fly-fishing stream. Recreational classification is appropriate.
Questa	12	Deer Creek	From headwaters to Columbine Creek	Wild (fish)	2.9	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
Questa	13	East Fork	From headwaters to trailhead	Wild (scenic, historic)	4.0	Elizabethtown ditch no longer diverts water, but historically started on the Middle Fork, collected water from the East Fork and Sawmill Creek, and carried it to the east slopes of the Sangre de Cristo mountains. Wild classification is appropriate.
Questa	14	Foreman Creek	From private property boundary to Comanche Creek	Recreational (fish)	1.3	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Recreational classification is appropriate due to existing culverts, closed roads.
Questa	17	Gold Creek	From private land boundary to Comanche Creek	Scenic (fish)	1.2	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Scenic classification is appropriate due to old, administrative roads that are used by Vermejo Park to access the La Belle property which detract from the primitive character.
Questa	19	Grassy Creek	From headwaters to Comanche Creek	Scenic (fish)	3.2	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Scenic classification is appropriate.
Questa	20	Holman Creek	From headwaters to Comanche Creek	Recreational (fish)	3.2	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Recreational classification is appropriate.
Questa	22	La Belle Creek	From private property boundary to Comanche Creek	Recreational (fish)	1.0	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Recreational classification is appropriate.
Questa	23*	La Cueva Canyon	From headwaters to Costilla Creek	Scenic (fish)	2.2	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Scenic classification is appropriate due to closed (administrative) road.
Questa	24	Lagunitas Fork	From headwaters to Lake Fork	Wild (fish)	1.7	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.

Ranger District	ID	River Segment Name	River Segment Location	Classification (ORV)	Length (miles)	Narrative Description of Outstandingly Remarkable Values
Questa	25	Lake Fork	From headwaters to Cabresto Lake	Wild (fish)	4.0	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
Questa	29	Little Costilla Creek	From headwaters to Comanche Creek	Scenic (fish)	5.0	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Scenic classification is appropriate due to closed (administrative) road that parallels this segment.
Questa	34	Middle Fork	From below Middle Fork lake to private land	Scenic (scenic, historic)	2.3	Middle Fork Lake is altered (dammed). Below the lake the river is free flowing. Elizabethtown ditch no longer diverts water, but historically started on the Middle Fork, collected water from the East Fork and Sawmill Creek, and carried it to the east slopes of the Sangre de Cristo mountains. Scenic classification is appropriate due to an old road/ATV trail that parallels this river segment and the day use site at the lake.
Questa	41	Placer Fork	From headwaters to Columbine Creek	Wild (fish)	4.0	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
Questa	42*	Powder-house Canyon	From headwaters to Forest boundary	Recreational (fish)	4.2	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. There are many closed roads in this area that detract from the primitive character. There is an existing fish barrier in the middle of this segment that impacts free flow and impounds water, therefore a recreational classification is appropriate.
Questa	45	Red River	From canyon mouth below Hwy 522 to fish hatchery	Recreational (recreational)	1.7	The recreational fishing opportunities are outstandingly remarkable due to the accessible and well stocked fishery. There is a road that parallels much of this segment. The lower portion is diverted which effects the river's free-flowing nature. There are power lines in the corridor, and substantial development around the fish hatchery. Recreational classification is appropriate.
Questa	53	Sawmill Creek	From headwaters to East Fork	Wild (scenic, historic)	3.3	Elizabethtown ditch no longer diverts water, but historically started on the Middle Fork, collected water from the East Fork and Sawmill Creek, and carried it to the east slopes of the Sangre de Cristo mountains. Wild classification is appropriate
Questa	57	Vidal Creek	From headwaters to Comanche Creek	Wild (fish)	5.6	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. The large valley meadows on the west side of the Valle Vidal are unusual in the region for their scenic and primitive recreational value. Wild classification is appropriate.

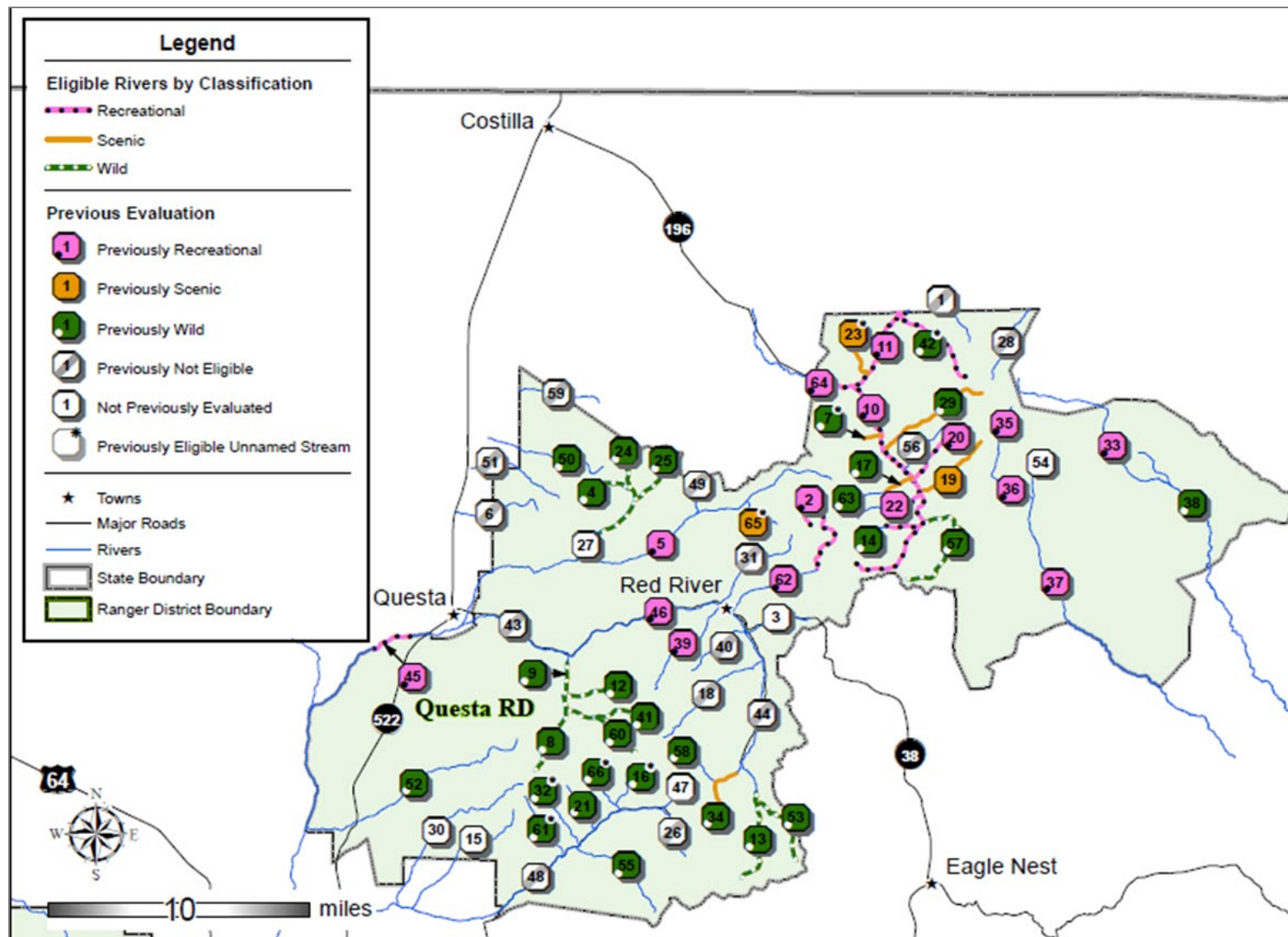
Ranger District	ID	River Segment Name	River Segment Location	Classification (ORV)	Length (miles)	Narrative Description of Outstandingly Remarkable Values
Questa	60	Willow Fork	From headwaters to Placer Fork	Wild (fish)	2.1	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
Tres Piedras	36	Rio de los Pinos	From Colorado border to private land boundary	Recreational (scenic, recreational, geologic)	2.4	Rock outcrops and the gorge are outstandingly remarkable scenic and geologic values. The Proterozoic rocks in the Rio de Los Pinos valley are gneiss, schist, and amphibolite intruded by granite and dikes of aplite and pegmatite. Fishing opportunities and the Cumbres-Toltec railroad are outstanding recreational values. Wildlife viewing opportunities, brown trout habitat, riparian corridor, and wildlife diversity are not outstandingly remarkable regionally. Recreational classification is appropriate due to the parallel railroad.
Tres Piedras	37	Rio de los Pinos	From private land boundary to private land boundary	Recreational (scenic, recreational)	2.6	There are irrigation diversions on private land above and below this segment which is free-flowing. Fishing and camping are popular in this segment in the scenic gorge. Recreational classification is appropriate due to parallel FR 284 and developed campgrounds.
Tres Piedras	39	Rio San Antonio	From Stewart Meadows to Forest boundary	Scenic (scenic)	6.9	The steep canyon and surrounding plains are outstandingly remarkable scenic values. Scenic classification is appropriate due to FR 87 and FR 118 which parallel most of this segment. There is also a small inholding in the middle of this segment with some development, and range improvements (fences, tanks) in the river corridor.
Tres Piedras	43	Rio Tusas	From headwaters to section 16 tank	Wild (recreational)	3.7	This river segment is crossed by Trail 41, and the Continental Divide Trail. In combination with sport fishing opportunities these recreational values are outstandingly remarkable. There is a tank in section 16 that impounds water and affects free flow but a wild classification is appropriate upstream.
Tres Piedras	50	Toltec Creek	Forest Boundary to private land	Wild (scenic, recreational, geologic)	1.0	The headwaters in Colorado are eligible for their scenic, recreational, and historic values. The Cumbres and Toltec railroad is not within the ¼ mile corridor on the Carson National Forest, and there are no other outstandingly remarkable historic values on the New Mexico side. Toltec canyon is a remote, steep, and narrow canyon that is outstandingly remarkable for its scenic and recreational values. Wild classification is appropriate as the surroundings are generally primitive.

Note: Ranger districts are abbreviated as follows: Camino Real (Cr), Canjilon (Ca), El Rito (Er), Jicarilla (Ji), Tres Piedras (Tp), and Questa (Qu).



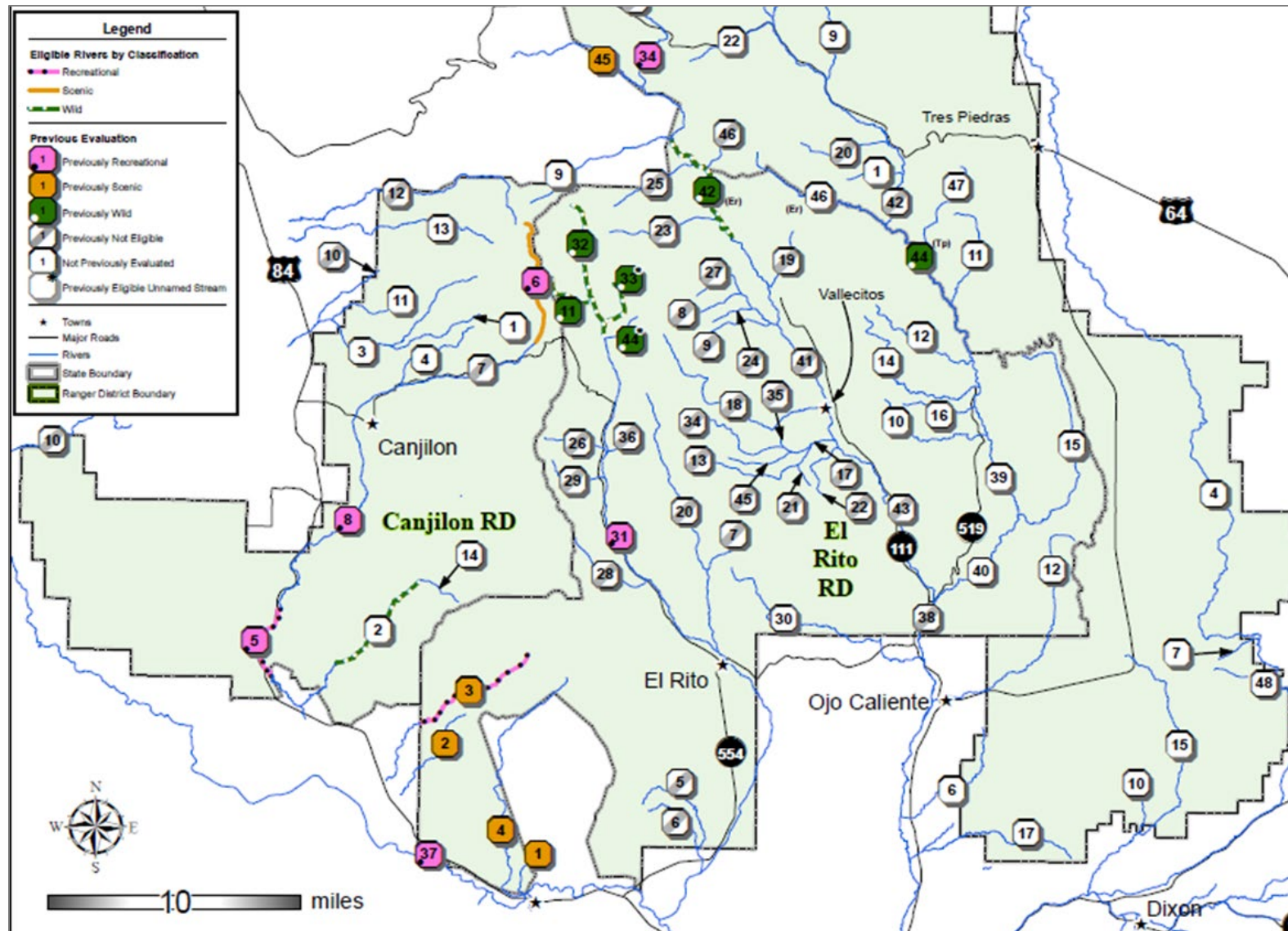
**Figure 75. Camino Real Ranger District eligible wild and scenic rivers**

Note: Eligible rivers are indicated by a thicker line.



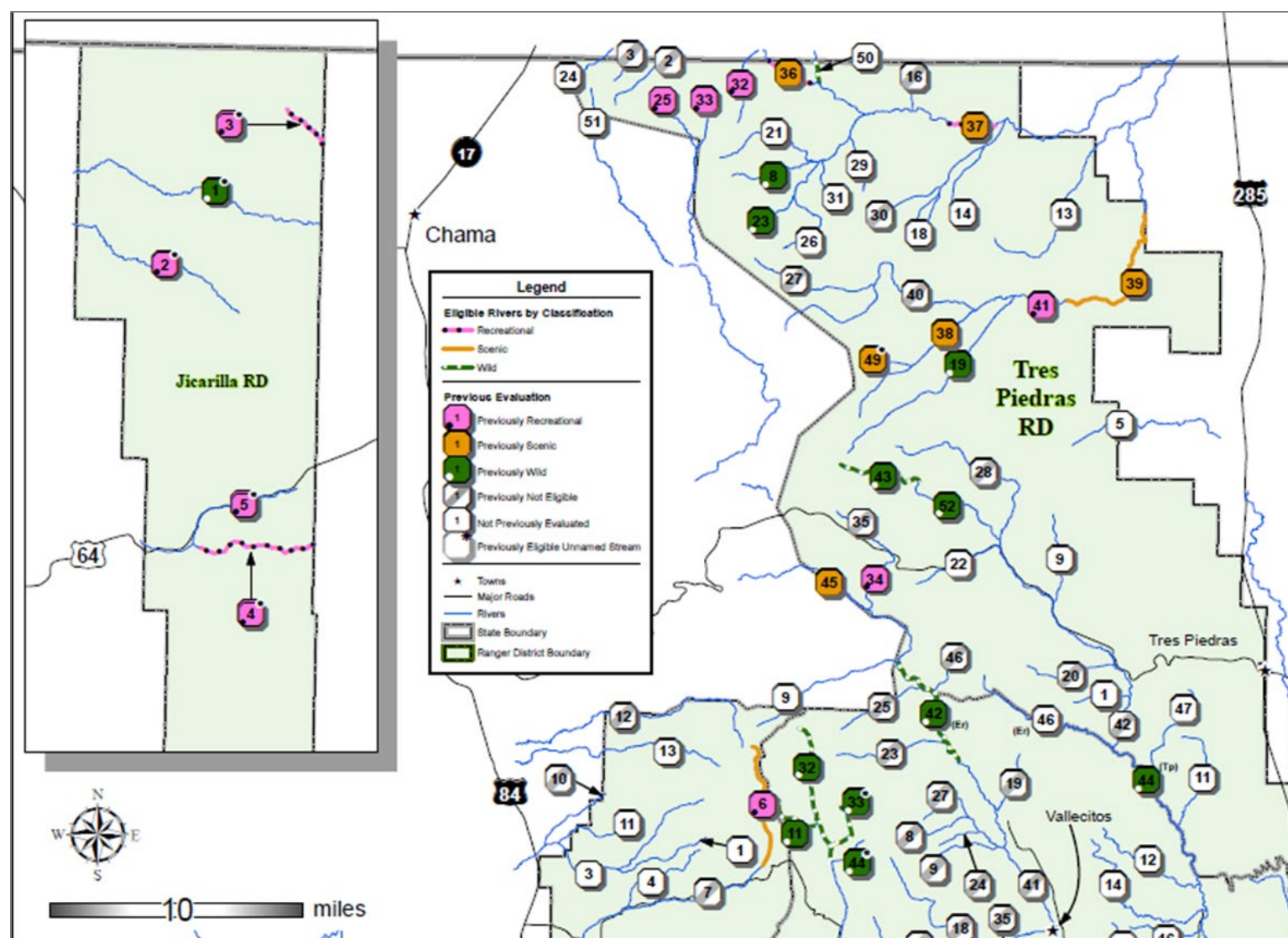
**Figure 76. Questa Ranger District eligible wild and scenic rivers**

Note: Eligible rivers are indicated by a thicker line.



**Figure 77. El Rito and Canjilon ranger districts eligible wild and scenic rivers**

Note: Eligible rivers are indicated by a thicker line.



**Figure 78. Tres Piedras and Jicarilla ranger districts eligible wild and scenic rivers**

Note: Eligible rivers are indicated by a thicker line.

## All Evaluated River Segments

A total of 217 rivers on the Carson National Forest were evaluated for eligibility. Some of those rivers are broken into multiple segments (smaller sections of one named river) with different eligibility or classification. For example, a road may parallel the bottom half (section 1) of a river, but not the top half (section 2). Both sections may be found eligible, but the classification of section 1 may be recreational while the classification for section 2 may be wild. Thus, one river was evaluated and found eligible. Two river sections were evaluated separately and both were found eligible, but assigned different classifications. There are 255 river segments being evaluated. 180 of those segments were previously evaluated. 75 of those segments were not previously evaluated. 8 of those segments that were not previously evaluated are connected to a river that was previously partially evaluated.

There are 6 segments that share identification numbers with another segment. Cañada Taques (Tp18) has two forks (treated as two segments, but evaluated together). The Rio Santa Barbara (Cr31) has three forks that converge to a mainstem (4 segments that were evaluated together). Alamitos Creek (Cr2a and Cr2b) was initially evaluated as a single segment, but was split into two because of the acequia diversion that occurs in the middle of that segment and was not assigned a new number (the new segments are labeled a and b). There are a total of 14 evaluated segments in the Canjilon Ranger District, 71 evaluated segments in the Camino Real Ranger District (4 segments labeled with the same identification number), 46 evaluated segments in the El Rito Ranger District, 5 evaluated segments in the Jicarilla Ranger District, 66 evaluated segments in the Questa Ranger District, and 53 evaluated segments in the Tres Piedras Ranger District (2 segments labeled with the same identification number).

Those 255 river segments are listed in table 59 below, including their identifier (ranger district and identification number), name, location, and the result of the evaluation. Eligible rivers are assigned a classification (scenic, recreational, or wild) and the outstandingly remarkable values for which they are determined to be eligible are listed. The narrative describes the rationale for the evaluation. Identification numbers locate the river on the corresponding ranger district map. An asterisk (\*) signifies rivers that are not named on a USGS 7.5 minute quad, but are being evaluated because they were previously determined to be eligible.

**Table 59. Eligibility evaluations of river segments on the Carson with a narrative description of outstandingly remarkable values (ORVs)**

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
Canjilon	1	Amador Creek	Headwaters to Cañada del Baño	Not Eligible	No outstandingly remarkable values identified.
Canjilon	2	Arroyo del Yeso	FR 138 to private land	Wild (scenic, recreational, geologic)	It seems that the previous evaluation misidentified this as a tributary of the Rio Chama and grouped it in with eligible rivers assigned a wild classification. Among the intermittent Rio Chama tributaries on the El Rito Ranger District, Arroyo del Chamiso was judged to be the most outstandingly remarkable for its sandstone cliffs and steep drainages. However, the previous evaluation of outstandingly remarkable values is more applicable to Arroyo del Yeso which was previously unevaluated and drains into Canjilon Creek, not the Rio Chama. Arroyo del Yeso is the largest and most dramatic of these river canyons. Steep drainages have sliced through the

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
					sandstone cliffs revealing many shades of yellow, pink, red, purple and blue-gray. The area above Ghost Ranch attracts visitors from all over the world. They come to gaze, to photograph, to paint, and to hike into the canyons. Wild classification is appropriate.
Canjilon	3	Cañada del Baño	Headwaters to forest boundary	Not Eligible	There are 3 pit tanks on this segment that effect free-flow. No outstandingly remarkable values identified.
Canjilon	4	Cañada Fuertes	Headwaters to Canjilon Creek	Not Eligible	There are 2 pit tanks on this segment that effect free-flow. No outstandingly remarkable values identified.
Canjilon	5	Canjilon Creek	From private land boundary to Forest boundary	Recreational (scenic, recreational, geologic)	The scenic and recreational opportunities in this segment are outstandingly remarkable regionally. The canyon with dramatic sandstone cliffs is wider than the ¼ mile river corridor, but is dramatic and unique. The side canyons are popular for hunting and Echo Amphitheater is a unique recreational site. Fossil beds of similar quality and from similar time periods are found throughout the southwestern US (Utah and Arizona). These particular fossil beds are not outstandingly remarkable regionally. The wildlife diversity found here is not outstandingly remarkable regionally. The oldest known Douglas fir in New Mexico is no longer thought to be in this area, but instead on the northern edge of the district. The Recreational classification is appropriate.
Canjilon	6	Canjilon Creek	From headwaters to fish barrier	Scenic (recreational)	The riparian and scenic values are not outstandingly remarkable regionally. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section, but this is an isolated segment. The opportunity to fish for Rio Grande cutthroat trout contributes to the outstandingly remarkable recreational value. The Continental Divide Trail parallels the river for most of this segment, though it is actually old two-track road in many places. Canjilon lakes developed campground is in the river corridor, and there is significant evidence of recent timber harvest. Scenic classification is appropriate.
Canjilon	7	Canjilon Creek	From private land boundary to private land boundary of Canjilon	Not Eligible	There is a buttressed bridge on FR 599 that effects free-flow. No outstandingly remarkable values identified.
Canjilon	8	Canjilon Creek	From private land boundary below Canjilon to private land near Martinez Canyon	Not Eligible	The scenic and recreational opportunities in this segment are not outstandingly remarkable regionally. Echo amphitheater and the fossil beds are further downstream. The wildlife value is not outstandingly remarkable regionally. The oldest known

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
					Douglas fir in New Mexico is no longer thought to be in this area, but instead on the northern edge of the district.
Canjilon	9	Jaroso Creek	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Canjilon	10	Rio Cebolla	From Forest boundary to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Canjilon	11	Rio del Medio	Headwaters to forest boundary	Not Eligible	There is a pit tank that effects free-flow. No outstandingly remarkable values identified.
Canjilon	12	Rio Nutrias	From headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Canjilon	13	Terrero Creek	Headwaters to forest boundary	Not Eligible	No outstandingly remarkable values identified.
Canjilon	14	Arroyo del Yeso	Headwaters to FR 138	Not Eligible	No outstandingly remarkable values identified.
Camino Real	1	Agua Piedra Creek	From headwaters to Rio Pueblo	Not Eligible	Most of this river is confined by trails 19 and 19A (motorized) which effect its free-flowing nature. Rio Grande cutthroat trout populations are not genetically pure, and there is no fish barrier on this segment. Agua Piedra is the only named stream, tributaries are unnamed.
Camino Real	2a	Alamitos Creek	From headwaters to Rio Pueblo	Not Eligible	No outstandingly remarkable values identified.
Camino Real	2b	Alamitos Creek	La Sierra ditch diversion to Rio Pueblo	Not Eligible	No outstandingly remarkable values identified. Alamitos Creek is partially diverted into La Sierra ditch at the top of this segment. Most of the segment runs through private land.
Camino Real	3	Alamitos Creek	From headwaters to FR 161D	Wild (fish)	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate above FR161D. Below that point FR161 parallels the river, the setting is not primitive, and there is much more evidence of human activity.
Camino Real	4	North Fork Alamitos Creek	Headwaters to Alamitos Creek	Wild (fish)	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
Camino Real	5*	Arellano Canyon	Headwaters to Rito de la Presa	Not Eligible	Recreational opportunities are not outstandingly remarkable, the original outstandingly remarkable value of potential for supporting Rio Grande cutthroat trout is not outstandingly remarkable.

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
Camino Real	6	Arroyo Hondo	From Forest boundary to Forest boundary	Scenic (geologic)	The lower Bureau of Land Management segment of Arroyo Hondo has been listed as eligible for outstandingly remarkable “geologic” values. Staurolites, unique geologic features, are found along this upper segment of the Arroyo Hondo. It is determined to be eligible for outstandingly remarkable “geologic” values. Scenic classification is appropriate due to a (closed) two-track road that parallels the entire segment, crossing it in several places.
Camino Real	7	Arroyo Miranda	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Camino Real	8	Cañada Ancha	Forest boundary to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Camino Real	9	Cañada Ancha	Headwaters to private land	Not Eligible	No outstandingly remarkable values identified.
Camino Real	10	Cañada de Abeyta	Forest boundary to Rio de Truchas	Not Eligible	No outstandingly remarkable values identified.
Camino Real	11	Cañada de Don Samuel	Headwaters to Rio Pueblo	Not Eligible	No outstandingly remarkable values identified.
Camino Real	12	Cañada de Jacinto	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Camino Real	13	Cañada de la Madera	Headwaters to Cañada del Agua	Not Eligible	No outstandingly remarkable values identified. This area is heavily roaded with old roads (closed), and free-flow is being impacted by effects of illegal use and stream crossings.
Camino Real	14	Cañada de la Marias	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified. This area is heavily roaded with old roads (closed), and free-flow is being impacted by effects of illegal use and stream crossings.
Camino Real	15	Cañada de la Orilla	Headwaters to Cañada del Oso	Not Eligible	No outstandingly remarkable values identified.
Camino Real	16	Cañada de las Entrañas	Headwaters to Forest boundary	Not Eligible	There is a pit tank in this segment that effects free-flow. No outstandingly remarkable values identified.
Camino Real	17	Cañada de las Ruedas	Headwaters to Rio de Truchas	Not Eligible	No outstandingly remarkable values identified.
Camino Real	18	Cañada de los Alamos	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified. This area is heavily roaded with old logging roads (closed), and free-flow is being impacted by effects of a pit tank, illegal use and stream crossings.

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
Camino Real	19	Cañada de los Alamos	Headwaters to Rio de las Trampas	Not Eligible	No outstandingly remarkable values identified. The lower portion of this segment passes through private land, and free flow is influenced by acequia diversion.
Camino Real	20	Cañada de los Pinos Reales	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Camino Real	21	Cañada de Ojo del Agua	Headwaters to private land	Not Eligible	No outstandingly remarkable values identified. This area is heavily roaded with old logging roads (closed), and free flow is being impacted by effects of a pit tank, illegal use and stream crossings.
Camino Real	22	Cañada de Ojo Sarco	Headwaters to private land	Not Eligible	There is a pit tank in this segment that effects free-flow. No outstandingly remarkable values identified.
Camino Real	23	Cañada del Agua	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified. This area is heavily roaded with old roads (closed), and free-flow is being impacted by effects of illegal use and stream crossings.
Camino Real	24	Cañada del Montecito	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Camino Real	25	Cañada del Oso	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Camino Real	26*	Cañon Tio Maes	From headwaters to Rio Pueblo	Not Eligible	The motorized trail recreational opportunity is not outstandingly remarkable regionally.
Camino Real	27	Chamisal Creek	Headwaters to private land	Not Eligible	No outstandingly remarkable values identified.
Camino Real	28	Coyote Creek	Headwaters to private land	Not Eligible	No outstandingly remarkable values identified.
Camino Real	29	Duran Creek	Headwaters to Rito de la Presa	Not Eligible	Recreational opportunities are not outstandingly remarkable, the original outstandingly remarkable value of potential for supporting Rio Grande cutthroat trout is not outstandingly remarkable.
Camino Real	30	East Fork Luna Creek	From headwaters to Forest Boundary	Not Eligible	No outstandingly remarkable values identified. Bull Canyon does not contain a named river.
Camino Real	31	Rio Santa Barbara (all three forks)	From headwaters to Jicarita Creek confluence	Wild (scenic, recreational, historic)	All three forks of the Rio Santa Barbara offer outstanding scenic and recreational opportunities, because of the solitude and high alpine, primitive experience and views of the entire basin and its expansive aspen stands. The history of the Santa Barbara Pole and Tie Company is remarkable for its influence on the local communities. There is less remaining evidence in this river segment than there is in segment #53, however none of the remaining structures are remarkable themselves. It is the history of use and the way that it changed the local economy that are remarkable and those are as tied to these upper

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
					sections as they are to downstream areas. Rio Grande cutthroat trout populations are suspected to be hybridized and non-native species are present. There is not a full barrier that separates this section. The geologic and wildlife values in these rivers are not outstandingly remarkable regionally. The geologic and wildlife values of these rivers are similar to those found in rivers in the Wheeler Peak, Columbine-Hondo, and Latir Wilderness areas on the Carson, on the Santa Fe National Forest side of the Pecos Wilderness as well as other areas in the region of comparison. There is an old water system above the campground that impacts primitive character in that area. Above that point wild classification is appropriate.
Camino Real	32*	Flechado Canyon	From headwaters to Rio Pueblo	Not Eligible	The non-motorized trail recreational opportunity is not outstandingly remarkable regionally.
Camino Real	33	Frijoles Creek	Headwaters to Rito de la Olla	Not Eligible	No outstandingly remarkable values identified.
Camino Real	34*	Gallegos Canyon	From headwaters to Rio Pueblo	Not Eligible	The motorized trail recreational opportunity is not outstandingly remarkable regionally.
Camino Real	35	Indian Creek	Headwaters to Rio Pueblo	Not Eligible	No outstandingly remarkable values identified.
Camino Real	36	Jarosa Creek	Headwaters to forest boundary	Not Eligible	No outstandingly remarkable values identified.
Camino Real	37	Jicarita Creek	Headwaters to Rio Santa Barbara	Not Eligible	No outstandingly remarkable values identified. This segment is outside of the Pecos Wilderness. The Rio Grande cutthroat trout populations in this segment are not hybridized as they are in the Rio Santa Barbara, but there is not a complete barrier separating this segment.
Camino Real	38	Knob Creek	From headwaters to Rito Angostura	Not Eligible	No outstandingly remarkable values identified.
Camino Real	39*	La Cueva Canyon	From headwaters to Rio Pueblo	Not Eligible	The motorized trail recreational opportunity is not outstandingly remarkable regionally.
Camino Real	40	Palociento Creek	Headwaters to Rito de la Olla	Not Eligible	No outstandingly remarkable values identified.
Camino Real	41*	Policarpio Canyon	From private land boundary to fish barrier	Not Eligible	Rio Grande cutthroat trout populations in Policarpio Canyon are genetically pure, no non-native species are present, and there is a full barrier that separates this section, but this is an isolated segment. Recreational opportunities are not outstandingly remarkable in the region.

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
Camino Real	42	Rio Chiquito	From headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified. Dinner Canyon does not contain a named river.
Camino Real	43	Rio Chiquito	From headwaters to Rio Grande del Rancho	Not Eligible	No outstandingly remarkable values identified.
Camino Real	44	Rio de las Trampas	From San Leonardo to Forest boundary	Not Eligible	This segment passes through the small communities of Diamante, El Valle, Los Trampas, and Vallecitos, and is highly developed and altered. The acequia diversions detract from the free-flowing characteristics of the river. Acequia diversion is a common practice across Northern New Mexico and the examples here are not historically outstandingly remarkable. The Rio Embudo confluence is about 1 mile beyond the national forest boundary. The private inholding of Vallecitos is just upstream of the eligible Bureau of Land Management section, right near the national forest boundary.
Camino Real	45	Rio de las Trampas	From headwaters to Rio San Leonardo	Not Eligible	There are many examples of high elevation headwater systems cutting through glacial terrain in the region. The scenic, recreational, and geologic values are not outstandingly remarkable regionally.
Camino Real	46	Rio de Truchas	From Truchas Land Grant boundary to Forest boundary	Not Eligible	There is a fish barrier, three acequia diversions, and a pit tank that effect free-flow. Rio Grande cutthroat trout are hybridized and non-native species are present. No outstandingly remarkable values identified.
Camino Real	47	Rio Fernando de Taos	From Forest boundary to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Camino Real	48	Rio Grande del Rancho	From headwaters to Rito de la Olla	Not Eligible	The recreational and scenic opportunities are relatively common and are not outstandingly remarkable regionally. There are other rivers on the forest alone that are more popular for recreationists (Rio Pueblo, Red River, Cabresto Creek). Cottonwood and riparian vegetation that is potential Southwestern willow flycatcher habitat is relatively common and not outstandingly remarkable regionally. Rio Grande cutthroat trout are present, but so are non-native trout. Much of the middle and upper portion of this river is confined by FR 439.
Camino Real	49	Rio Grande del Rancho	From private land to Forest boundary	Recreational (wildlife, other)	The historical site is across Highway 518 from the river on private land, and not directly river related. The small reconstructed site on national forest land is also not directly river related and not outstandingly remarkable among similar pueblo sites in the region. There are no cultural values that are regionally outstandingly remarkable. The willow riparian vegetation is critical habitat for Southwestern willow flycatcher,

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
					though none have been recorded here since 2014. The habitat is degraded but has potential to be high quality. Equally intact and functional riparian systems may be found in the region of comparison, but it is outstandingly remarkable at least on the forest and in northern New Mexico and is considered an outstandingly remarkable value.
Camino Real	50	Upper Rio Pueblo	From headwaters to Rito Angostura	Not Eligible	No outstandingly remarkable values identified.
Camino Real	51	Middle Rio Pueblo	From Rito Angostura to Osha diversion (near Camp Summerlife)	Not Eligible	The middle Rio Pueblo has been altered substantially by past use and is not free-flowing. There are diversions and impoundments in the Tres Ritos and Sipapu areas. There are structures in the river throughout this section for bridges, abandoned bridges, crossings, and bank hardening and reinforcement that all effect free flowing character. The abandoned railroad and sawmills in and of themselves are not outstandingly remarkable regionally. The evidence of splash dams detracts from the free-flowing characteristics of the river. The practice of flume logging was common across the west, and is not outstandingly remarkable regionally. However, the history of logging and the Santa Barbara Pole and Tie Company and its effect on the local communities is remarkable. The 1930's ski area warming hut and the history of the first New Mexico ski area is unique and significant, though the structure itself is not outstandingly remarkable regionally. There are other canyons that are at least as popular for recreation on the forest (Rio Chiquito Canyon, Taos Canyon, Rio Hondo Canyon, Red River Canyon, Cabresto Creek Canyon, Costilla Creek Canyon), and in the region (Cimarron Canyon, Jemez River Canyon, others). The level of development and accessibility for fishing, camping, picnicking, and sightseeing are unique to the forest, but not outstandingly remarkable within the region of comparison.
Camino Real	52	Rio San Leonardo	From headwaters to Rio de las Trampas	Not Eligible	There are many examples of high elevation headwater systems cutting through glacial terrain in the region. The scenic, recreational, and geologic values are not outstandingly remarkable regionally.
Camino Real	53	Rio Santa Barbara	From concrete bridge on FR 116 to Forest boundary	Not Eligible	The Hodges Logging Camp is not outstandingly remarkable regionally. The abandoned railroads are not outstandingly remarkable regionally. The splash dam and acequia diversions detract from the free-flowing characteristics of the river. The practice of flume logging was common across the west, and is

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
					not outstandingly remarkable regionally. Acequia diversion is a common practice across Northern New Mexico and the examples here are not outstandingly remarkable.
Camino Real	54	Rio Santa Barbara	From Jicarita Creek confluence to concrete bridge on FR 116	Not Eligible	The aspen in particular, and the scenic and recreational values of this area generally are not outstandingly remarkable regionally. The riparian value of this segment is not outstandingly remarkable regionally.
Camino Real	55	Rito Angostura	Headwaters to Rio Pueblo	Not Eligible	This upper portion of the Rito Angostua is not free flowing. The entirety of the overland flow is diverted in the headwaters into the La Sierra ditch. Eligibility below the diversion would have no impact the water supply to those communities that rely on the acequia. Groundwater resupplies the stream and there is some flow lower down that supports Rio Grande Cutthroat Trout (Rio Grande cutthroat trout) populations that are genetically pure. No non-native species are present, and there is a full barrier that separates this section. However, due to the upstream diversion the flow required to sustain or complement the fish value cannot be guaranteed, and is outside the authority of the Carson National Forest to manage.
Camino Real	56	Rito Bonito	Headwaters to Rio Chiquito	Not Eligible	Rito Bonito is the only named tributary. No outstandingly remarkable values identified.
Camino Real	57	Rito de la Olla	From headwaters to Rio Grande del Rancho	Not Eligible	There is a full barrier in the middle of this segment that effects free-flow. Rio Grande cutthroat trout are present, but so are non-native trout. There are no cultural values that are outstandingly remarkable regionally. The cultural site is mainly on private land, and where a portion of the cultural site is on national forest land the river is on private land. The lower portion of the river is confined by FR 438, effecting its free-flowing nature.
Camino Real	58	Rito de la Presa	Headwaters to Rio Pueblo	Not Eligible	Fish barrier is only partial and toward the headwaters of the stream, near Little Korea. The two developed campgrounds and most of the dispersed camping in this area are along this river. The recreational opportunities are not outstandingly remarkable in the region. The flow of this river has been altered to protect the adjacent forest road and campsites. There are several bridges with hardened, buttressed sides, culverts, low water crossings, and bank hardening to route the river around campsites that all degrade its free-flowing nature.
Camino Real	59	Rito Osha	Headwaters to Rito de la Olla	Not Eligible	No outstandingly remarkable values identified.

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Camino Real	60	Rito Quien Sabe	Headwaters to Rito de la Olla	Not Eligible	No outstandingly remarkable values identified.
Camino Real	61	Rito Sandoval	Headwaters to Rio Pueblo	Not Eligible	No outstandingly remarkable values identified.
Camino Real	62*	Sardinas Canyon	Headwaters to Rito de la Presa	Not Eligible	Recreational opportunities are not outstandingly remarkable, the original outstandingly remarkable value of potential for supporting Rio Grande cutthroat trout is not outstandingly remarkable.
Camino Real	63	Tienditas Creek	Headwaters to Rio Don Fernando	Not Eligible	Capulin Canyon is not a named river. No outstandingly remarkable values were identified for Tienditas Creek.
Camino Real	64	West Fork Luna Creek	From headwaters to Forest Boundary	Not Eligible	No outstandingly remarkable values identified. Bull Canyon does not contain a named river.
Camino Real	65	Lower Rio Pueblo	From fish barrier to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Camino Real	66*	Tierra Amarilla Canyon	From headwaters to Forest boundary	Not Eligible	There is a small scenic rock outcrop, but it is not remarkable, similar outcrops found in the Latir area of the Questa Ranger District and in the Rio Frijoles canyon on the Santa Fe National Forest. More remarkable scenic rocky cliffs can be found in the Cruses Basin area and in the Costilla Creek canyon on the Carson National Forest, as well as other places in the region. The scenic and geologic values are not outstandingly remarkable regionally. No outstandingly remarkable wildlife values were identified.
Camino Real	67*	Agua Caliente Canyon	From headwaters to Forest boundary	Scenic (historic, cultural)	Warm springs flows into Agua Caliente Canyon, not Tierra Amarilla Canyon, and it doesn't seem that this canyon was part of the previous evaluation. The scenery and geologic values here are less remarkable than in Tierra Amarilla Canyon. No outstandingly remarkable wildlife values were identified. The 1854 Battle of Cieneguilla is historically significant, and the site is important for its historical interpretive value among battle sites in the Apache Wars of the late 1800s. The battlefield is eligible for the National Register of Historic Sites. The area around warm springs is also culturally important to many area tribes. There is unique traditional tribal importance tied to the springs, the creek, and the surrounding area. A classification of scenic is appropriate because the upper portion of the river has evidence of past timber harvest and there are many closed, inconspicuous roads that cross the river in places. The creek is confined in culverts in several locations.

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El Rito	1	Arroyo Blanco	Forest boundary to Forest boundary	Not Eligible	This river is not free flowing. The canyon bottom is a designated forest road (84T2). Any ephemeral flows are contained within the road. This area does not have the outstandingly remarkable values identified for canyons further north.
El Rito	2	Arroyo de Comales	Headwaters to Forest boundary	Not Eligible	Arroyo de Comales is much smaller and its cliffs and scenery are less dramatic than either Chamiso or Yeso. No outstandingly remarkable values.
El Rito	3	Arroyo del Chamiso	Headwaters to Forest boundary	Recreational (scenic)	Among the intermittent Rio Chama tributaries on the El Rito Ranger District, Arroyo del Chamiso was judged to be the most outstandingly remarkable for its sandstone cliffs and steep drainages. Most visitors would only view the canyon from Highway 84, as it is not accessible from the bottom. There are no designated trails or open roads. The previous discussion of outstandingly remarkable values is more applicable to Arroyo del Yeso which was previously unevaluated and drains into Canjilon Creek, not the Rio Chama. Arroyo del Yeso and Arroyo del Chamiso are much larger and more dramatic than the other intermittent tributaries, and are the only two that are judged to be outstandingly remarkable. There is a closed road used by grazing permittees to access pit tanks that parallels most of this segment. There is an adjacent area that has been chained to remove piñon and juniper woodlands and create grasslands that are maintained with fire or thinning. There are 4 pit tanks in this river segment that impound water and impact the free-flowing nature of the river, therefore a recreational classification is appropriate
El Rito	4	Arroyo del Cobre	Forest boundary to Forest boundary	Not Eligible	This river is not free flowing. The canyon bottom is a designated forest road (84A). Any ephemeral flows are contained within the road. This area does not have the same outstandingly remarkable values as the canyons further north.
El Rito	5	Arroyo del Perro	From headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
El Rito	6	Arroyo del Perro del Oeste	From headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
El Rito	7	Arroyo Seco	From headwaters to El Rito Creek	Not Eligible	No outstandingly remarkable values identified.
El Rito	8	Cañada Alamosa	Headwaters to Rio Vallecitos	Not Eligible	No outstandingly remarkable values identified.

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El Rito	9	Cañada Burro	Headwaters to Cañada Alamosa	Not Eligible	No outstandingly remarkable values identified.
El Rito	10	Cañada de Abrevadero	Headwaters to Rio Tusas	Not Eligible	No outstandingly remarkable values identified.
El Rito	11	Cañada de Chacon	From headwaters to El Rito Creek	Wild (fish)	Provides some Rio Grande cutthroat trout habitat. Populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
El Rito	12	Cañada de la Jarita	Headwaters to Rio Tusas	Not Eligible	No outstandingly remarkable values identified.
El Rito	13	Cañada de la Jarita	Headwaters to Rio Tusas	Not Eligible	No outstandingly remarkable values identified.
El Rito	14	Cañada de los Apaches	Headwaters to Rio Tusas	Not Eligible	No outstandingly remarkable values identified.
El Rito	15	Cañada de los Comanches	Headwaters to Rio Tusas	Not Eligible	No outstandingly remarkable values identified.
El Rito	16	Cañada de los Tanques	Headwaters to Rio Tusas	Not Eligible	No outstandingly remarkable values identified.
El Rito	17	Cañada del Agua	Confluence of Middle and North Forks to Rio Vallecitos	Not Eligible	No outstandingly remarkable values identified.
El Rito	18	Cañada del Borracho	Headwaters to Rio Vallecitos	Not Eligible	No outstandingly remarkable values identified.
El Rito	19	Cañada del Oso	Headwaters to Rio Vallecitos	Not Eligible	No outstandingly remarkable values identified.
El Rito	20	Cañada del Protrero	From headwaters to Arroyo Seco	Not Eligible	No outstandingly remarkable values identified.
El Rito	21	Cañada del Puertecito	Headwaters to Cañada de la Jarita	Not Eligible	No outstandingly remarkable values identified.
El Rito	22	Cañada del Rancho	Headwaters to Rio Vallecitos	Not Eligible	No outstandingly remarkable values identified.
El Rito	23	Cañada Escondida	Headwaters to Rio Vallecitos	Not Eligible	No outstandingly remarkable values identified.
El Rito	24	Cañada Gallina	Headwaters to Cañada Alamosa	Not Eligible	No outstandingly remarkable values identified.

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El Rito	25	Cañada Jarosita	Headwaters to Rio Vallecitos	Not Eligible	No outstandingly remarkable values identified.
El Rito	26	Cañada Jose Maria	From headwaters to El Rito Creek	Not Eligible	No outstandingly remarkable values identified.
El Rito	27	Cañada Llaves	Headwaters to Cañada Alamosa	Not Eligible	No outstandingly remarkable values identified.
El Rito	28	Cañada Piedra Amarilla	From headwaters to El Rito Creek	Not Eligible	No outstandingly remarkable values identified.
El Rito	29	Cañada Sierra	From headwaters to El Rito Creek	Not Eligible	No outstandingly remarkable values identified.
El Rito	30	Desague Aguita	Headwaters to forest boundary	Not Eligible	No outstandingly remarkable values identified.
El Rito	31	El Rito Creek	From fish barrier to Forest boundary	Not Eligible	This segment runs through multiple private inholdings and is highly developed and altered. The Sapawe Pueblo ruins are off the forest. The historic values on the forest (agricultural features) are not outstandingly remarkable. There are no cultural values that are regionally outstandingly remarkable.
El Rito	32	El Rito Creek	From headwaters to fish barrier	Wild (fish)	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
El Rito	33*	Hachita Canyon	From headwaters to El Rito Creek	Wild (fish)	Provides some Rio Grande cutthroat trout habitat. Populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
El Rito	34	Middle Fork Cañada del Agua	Headwaters to Cañada del Agua	Not Eligible	No outstandingly remarkable values identified.
El Rito	35	North Fork Cañada del Agua	Headwaters to Cañada del Agua	Not Eligible	No outstandingly remarkable values identified.
El Rito	36	Ojito Chico	From headwaters to El Rito Creek	Not Eligible	No outstandingly remarkable values identified.
El Rito	37	Rio Chama	From private land boundary to private land boundary	Not Eligible	Only a very short segment of the river between Abiquiu Dam and El Rito Creek is managed by the Forest Service. The Rio Chama in this area is mostly privately owned. The only segment that touches the Carson National Forest is less than a mile long where the river defines the boundary between the Carson and Santa Fe NFs. There are two low dams and one

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					diversion in this section that effect its free flow. There is no recreational access to this section of the river from the Carson National Forest, and much better recreational opportunities are available just upstream, above Abiquiu Reservoir, as well as in other areas of the region. The Poshuouingue Pueblo archeological site does not meet the criteria of a Cultural outstandingly remarkable value. It is located on the Santa Fe National Forest downstream from this river segment. While it may have some historical value as an outstandingly remarkable value that value is not directly related to this river segment.
El Rito	38	Rio Ojo Caliente	From Rio Vallecitos/Tusas confluence to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
El Rito	39	Rio Tusas	From Las Tablas to Cañada de los Comanches	Not Eligible	No outstandingly remarkable values identified.
El Rito	40	Rio Tusas	Cañada de los Comanches to Rio Ojo Caliente	Not Eligible	Acequia diversions affect free flow. No outstandingly remarkable values identified.
El Rito	41	Rio Vallecitos	From FR 274 to Cañada del Rancho	Not Eligible	Acequia diversions affect free flow. No outstandingly remarkable values identified.
El Rito	42	Rio Vallecitos	From Jarosa Creek to FR 274	Wild (scenic, recreational)	The sport fishing opportunity contributes to the recreational value but is not an outstandingly remarkable fish value. The canyon rock formations and opportunities for solitude are regionally remarkable scenic and recreational values. The Continental Divide trail crosses this segment. The center portion crosses through the private El Vallecito Ranch which is developed, but Wild classification is appropriate on national forest lands.
El Rito	43	Rio Vallecitos	From Cañada del Rancho to Rio Ojo Caliente	Not Eligible	No outstandingly remarkable values identified.
El Rito	44*	Salvador Canyon	From headwaters to El Rito Creek	Not Eligible	Providing runoff to an eligible river is not itself an outstandingly remarkable value. Salvador Canyon is below the fish barrier on El Rito Creek, and likely has non-native fish species.
El Rito	45	South Fork Cañada del Agua	Headwaters to Cañada del Agua	Not Eligible	No outstandingly remarkable values identified.
El Rito	46	Spring Creek	Headwaters to Rio Tusas	Not Eligible	No outstandingly remarkable values identified.
Jicarilla	1*	Bancos Canyon	From Forest boundary to Forest boundary	Not Eligible	There are two pit tanks in the upper section near open FR 310 and one near Rincon Quemado in the lower section that effect free flow. The river corridor is developed with a closed road that

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					parallels this entire segment and several decommissioned natural gas wells within 100 yards of the river. FR 309B6 on the west end is a permit road to an active well pad that is near the river. The section in between is popular for hunting, primarily deer hunters. No data is available to indicate if this canyon gets many more hunters than the rest of the district, however it is believed to get no more or no less. Carracas Mesa seems to be the magnet area for deer hunters during rifle seasons while other hunts are more widespread. Bottom lands such as this provide very little hiding cover for wildlife. There are other hunting opportunities on adjacent Bureau of Land Management lands that are as good, and there are better opportunities in the region of comparison (particularly Colorado). There have been bald eagle roost tree identified in the past, however those can be found throughout the region of comparison and are unremarkable. The canyon has a high density of archeological sites, but there are other canyons on the district with higher site density. Also, the site density within the canyon is comparable to the larger region and is not unique. The presence of primarily Anasazi sites with a few Navajo sites is also typical of the archeology of the four corners region.
Jicarilla	2*	Cabresto Canyon	From Forest boundary to Forest boundary	Not Eligible	There are three springs in close proximity in the east end of Cabresto Canyon which provide wildlife habitat. There is at least as dense a concentration of springs in other areas on the district (Carracas Canyon, lower Vaqueros Canyon, Valencia Canyon). There are other similar and higher quality wintering areas in the surrounding area, and certainly in the region of comparison. Cabresto Canyon has a high density of archeological sites, but does not have the highest density on the District. The site density is comparable to the archeology of the four corners region. The “major petroglyph area” is a single panel that is unique in terms of what has been recorded on the district, but not to the four corners region. The one unique archeological value for Cabresto Canyon is that the northeastern most known/recorded Navajo Pueblito site (a site type unique to the four corners) is located on Bancos Mesa (over a mile away) overlooking the Cabresto Canyon area, but this feature is not directly river related.
Jicarilla	3*	Carracas Canyon	From Forest boundary to Forest boundary	Recreational (historic)	While this may be one of the few places on the district that supports riparian plants, and while at the district level it may provide important habitat for deer and eagles, it is not unique in the region of comparison (Four Corners states). Even

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					considering only the Carson National Forest, this canyon does not have unique riparian values. It is unremarkable even in comparison to streams within just 10 miles, including Turkey Canyon, Tio Quinto Canyon, Devil's Canyon, Cottonwood Canyon, Bancos Canyon, Amargo Creek, Navajo River, Piedra River, and the San Juan River. The "wagon road" is a portion of the Northern Route of the Old Spanish Trail. There is physical evidence of constructed trail for mule trains including evidence at drainage crossings of modifications to allow for crossing by small carts or wagons. The boiler at Boiler Springs was important locally for its use to prepare for sheep dipping in the 1870s.
Jicarilla	4*	La Jara Canyon	From Forest boundary to Vaqueros Canyon	Recreational (historic)	While this may be one of the few places on the district that supports riparian plants, and while at the district level it may provide important habitat for deer and birds, it is not unique in the region of comparison (four corners states). Even considering only the Carson National Forest, this canyon does not have unique riparian values. It is unremarkable even in comparison to streams within just 10 miles, including Vaqueros Canyon, Frances Creek, Gobernador Canyon, and Munoz Creek. La Jara Canyon contains three Navajo Pueblito sites that are listed on the National Register of Historic Places. The canyon is also the location of a battle between the Navajo and the Spanish in 1705, during which the Spanish burned the Navajo homes and destroyed their milpas (corn fields).
Jicarilla	5*	Vaqueros Canyon	From Forest boundary to Forest boundary	Not Eligible	While this may be one of the few places on the district that supports riparian plants, and while at the district level it may provide important habitat for elk, it is not unique in the region of comparison (four corners states). Even considering only the Carson National Forest, this canyon does not have unique riparian values. It is unremarkable even in comparison to streams within just 10 miles, including La Jara Wash, Dulce Creek, Frances Creek, Gobemador Canyon, and Munoz Creek. The fall colors may be notable on the district, but not when compared to the region or even the Carson National Forest. The historic Vaqueros Ranger Station is significant to the District, but not significant in the context of the four corners. It is one of many known previous locations for the Jicarilla Ranger District headquarters.
Questa	1	Allen Creek	From headwaters to Forest boundary	Not Eligible	Rio Grande Cutthroat Trout (Rio Grande cutthroat trout) populations are genetically pure, no non-native species are

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					present, and there is a full barrier that separates this section, but this is an isolated segment.
Questa	2	Bitter Creek	From headwaters to private land (section 21)	Recreational (recreational, historic)	Bitter Creek has a long history of human use and modification. It was previously dammed and there are still dams on private land below this section. The stream channel has been altered by mining and mills and subsequent remediation. It is rerouted, and, while no longer impounded, its free flow is affected. Rio Grande cutthroat trout populations are genetically pure but there is not a complete barrier. The geothermal head scar geologic features occur throughout the Red River drainage. Those along Bitter Creek are not the largest, or otherwise conspicuous examples, and are not regionally outstandingly remarkable. The Anchor and Midnight mine sites are historically significant, and outstandingly remarkable. The valley is remarkable for its historic value and interpretive and educational values based on the number of old mine sites. The recreational classification is appropriate.
Questa	3	Bobcat Creek	From private land to Red River	Not Eligible	No outstandingly remarkable values identified.
Questa	4	Bull Creek	From headwaters to Lagunitas Fork	Wild (fish)	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
Questa	5	Cabresto Creek	From headwaters to Forest boundary	Not Eligible	Forest road 134 parallels and crosses this segment multiple times. There are multiple road crossings with bank hardening and other road related infrastructure, such as rip-rapping, that impact free-flow. The lower portion of this segment is not free flowing due to several major diversion structures. The Rio Grande cutthroat trout population is not outstandingly remarkable. Non-native fish species are present. Arizona willow is common regionally. The riparian vegetation here is not outstandingly remarkable.
Questa	6	Cañada Pinabete	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified. Peñasquito and Jaracito Canyons do not contain a named stream.
Questa	7*	Chuckwagon Creek	From headwaters to Comanche Creek	Scenic (fish)	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. There is a culvert where FR 1950 crosses this segment. An old road (old Midnight-Chuckwagon Trail) that parallels this segment has been mostly obliterated. This segment is less than 1 mile long and almost half of it is within ¼ mile of FR 1950. Scenic classification is appropriate.

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Questa	8	Columbine Creek	From headwaters to Deer Creek	Wild (fish, recreational)	RMBH are common in the region, and are not directly river related. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
Questa	9	Columbine Creek	From Deer Creek to Columbine trailhead	Scenic (recreational)	Below the barrier Rio Grande cutthroat trout populations are not genetically pure, non-native species are present, and there is not a full barrier that separates this section. The Columbine-Twining National Recreation Trail parallels this segment and the developed Columbine Campground is located along the river.
Questa	10	Comanche Creek	From headwaters to Costilla Creek	Recreational (scenic, recreational, geologic, fish, other)	The elk calving area is not outstandingly remarkable regionally, and not directly river related. There are prehistoric hunting blinds in the river corridor, but they are common regionally and not outstandingly remarkable. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Geologically, Comanche Point is outstandingly remarkable. It is an example of impact melt with columnar jointing (proterozoic biotite) believed to have formed at the center of an impact crater. The wetland component is remarkable compared to other similar systems. Recreational classification is appropriate.
Questa	11	Costilla Creek	From Forest boundary to fish barrier	Recreational (scenic, recreational, fish)	Riparian values are not outstandingly remarkable regionally. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Recreational classification is appropriate.
Questa	12	Deer Creek	From headwaters to Columbine Creek	Wild (fish, recreational)	RMBH are common in the region, and are not directly river related. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. The Columbine-Twining National Recreation Trail parallels the lower portion of this segment. Wild classification is appropriate.
Questa	13	East Fork	From headwaters to trailhead	Wild (scenic, historic)	The Sangre de Cristo pea clam is only found in Middle Fork Lake. RMBH and boreal owls are not outstandingly remarkable regionally. Arizona willow is not outstandingly remarkable regionally. Elizabethtown ditch no longer diverts water, but historically started on the Middle Fork, collected water from the East Fork and Sawmill Creek, and carried it to the east slopes of the Sangre de Cristo mountains. Wild classification is appropriate.

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Questa	14	Foreman Creek	From private property boundary to Comanche Creek	Recreational (fish)	There is an old log cabin, but no historic values that are outstandingly remarkable regionally. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Recreational classification is appropriate due to existing culverts, closed roads.
Questa	15	Gallina Creek	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Questa	16*	Gavilan Canyon	From headwaters to private land boundary	Not Eligible	RMBH population is not outstandingly remarkable regionally, and not directly river related. Rio Grande cutthroat trout populations are genetically pure, but non-native species are present, and there is no barrier that separates this section. The scenic and riparian values are not outstandingly remarkable compared to other similar regional rivers.
Questa	17	Gold Creek	From private land boundary to Comanche Creek	Scenic (fish)	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Scenic classification is appropriate due to old, administrative roads that are used by Vermejo Park to access the La Belle property which detract from the primitive character.
Questa	18	Goose Creek	From headwaters to Red River	Not Eligible	No outstandingly remarkable values identified.
Questa	19	Grassy Creek	From headwaters to Comanche Creek	Scenic (fish)	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Scenic classification is appropriate.
Questa	20	Holman Creek	From headwaters to Comanche Creek	Recreational (fish)	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Recreational classification is appropriate.
Questa	21	Italianos Canyon	From headwaters to private land boundary	Not Eligible	RMBH population is not outstandingly remarkable regionally, and not directly river related. The scenic and riparian values are not outstandingly remarkable compared to other similar regional rivers. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section, but this is an isolated segment.
Questa	22	La Belle Creek	From private property boundary to Comanche Creek	Recreational (fish)	The elk calving area is not outstandingly remarkable regionally, and not directly river related. There is no remaining evidence of the old town of La Belle. There is a newer building (c. 1970)

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					built by Vermejo Park on private land. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Recreational classification is appropriate.
Questa	23*	La Cueva Canyon	From headwaters to Costilla Creek	Scenic (fish)	The elk calving area is not outstandingly remarkable regionally, and not directly river related. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Scenic classification is appropriate due to closed (administrative) road.
Questa	24	Lagunitas Fork	From headwaters to Lake Fork	Wild (fish)	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
Questa	25	Lake Fork	From headwaters to Cabresto Lake	Wild (fish)	Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
Questa	26	Lake Fork	From headwaters to Rio Hondo	Not Eligible	No outstandingly remarkable values identified.
Questa	27	Lake Fork (Cabresto Creek)	From Cabresto Lake to Cabresto Creek	Not Eligible	No outstandingly remarkable values identified.
Questa	28	Leandro Creek	From headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified. Cutthroat genetics are pure, but Brook Trout are present.
Questa	29	Little Costilla Creek	From headwaters to Comanche Creek	Scenic (fish)	The elk calving area is not outstandingly remarkable regionally, and not directly river related. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Scenic classification is appropriate due to closed (administrative) road that parallels this segment.
Questa	30	Lobo Creek	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Questa	31	Mallette Creek	From headwaters to Red River	Not Eligible	No outstandingly remarkable values identified. There are no named tributaries.
Questa	32*	Manzanita Canyon	From headwaters to private land boundary	Not Eligible	RMBH population is not outstandingly remarkable regionally, and not directly river related. The scenic and riparian values are not outstandingly remarkable compared to other similar regional rivers. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
					barrier that separates this section, but this is an isolated segment.
Questa	33	McCrystal Creek	From Forest boundary to just above McCrystal Campground	Not Eligible	The elk wintering area is not outstandingly remarkable regionally, and not directly river related. Rio Grande cutthroat trout populations are genetically pure but there is not a complete barrier. The historic values are not outstandingly remarkable. McCrystal place is fallen down and not remarkable. The segment below McCrystal place is not free-flowing. A headgate completely diverts the flow, and there is a partially functional dam near McCrystal campground that impounds water. The short segment above McCrystal Place is free flowing but there are no outstandingly remarkable values.
Questa	34	Middle Fork	From below Middle Fork lake to private land	Scenic (scenic, historic)	Middle fork lake is altered (dammed). Below the lake the river is free flowing. The Sangre de Cristo pea clam is only found in Middle Fork Lake, not in the river below. RMBH and boreal owls are not outstandingly remarkable regionally. Arizona willow is not outstandingly remarkable regionally. Elizabethtown ditch no longer diverts water, but historically started on the Middle Fork, collected water from the East Fork and Sawmill Creek, and carried it to the east slopes of the Sangre de Cristo mountains. Scenic classification is appropriate due to an old road/ATV trail that parallels this river segment and the day use site at the lake.
Questa	35	Middle Ponil Creek	From headwaters to FR 1950	Not Eligible	Wildlife, historic, and ecological values are not outstandingly remarkable regionally. Rio Grande cutthroat trout population is not genetically pure.
Questa	36	Middle Ponil Creek	From FR 1950 to fish barrier	Not Eligible	Wildlife, historic, and ecological values are not outstandingly remarkable regionally. Rio Grande cutthroat trout population is not genetically pure.
Questa	37	Middle Ponil Creek	From barrier to Forest boundary	Not Eligible	Wildlife, historic, and ecological values are not outstandingly remarkable regionally. There is significant infestation by leafy spurge in this segment. Rio Grande cutthroat trout population is not genetically pure.
Questa	38	North Ponil Creek	From headwaters to Forest boundary	Not Eligible	There are no historic values that are outstandingly remarkable regionally. The town of Ponil burned in the Ponil Fire and is not outstanding.
Questa	39	Pioneer Creek	From headwaters to Red River	Not Eligible	There are no Cultural outstandingly remarkable values. The mine and mill sites along the river are not outstandingly remarkable regionally.

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
Questa	40	Placer Creek	From headwaters to Red River	Not Eligible	No outstandingly remarkable values identified.
Questa	41	Placer Fork	From headwaters to Columbine Creek	Wild (fish)	RMBH are common in the region, and are not directly river related. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
Questa	42*	Powderhouse Canyon	From headwaters to Forest boundary	Recreational (fish)	The elk wintering and calving areas are not outstandingly remarkable regionally, and not directly river related. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. There are many closed roads in this area that detract from the primitive character. There is an existing fish barrier in the middle of this segment that impacts free flow and impounds water, therefore a recreational classification is appropriate.
Questa	43	Red River	From Fawn Lakes Campground to Eagle Rock diversion	Not Eligible	No outstandingly remarkable values identified.
Questa	44	Red River	East Fork/Middle Fork confluence to Goose Creek	Not Eligible	No outstandingly remarkable values identified. This segment flows mainly through private land.
Questa	45	Red River	From canyon mouth below Hwy 522 to fish hatchery	Recreational (recreational)	The Red River is the only named, perennial river in this area (no tributaries are being considered). The identified scenic values are below the hatchery, in the existing designated area. The riparian values in this segment are not outstandingly remarkable regionally. The geologic values are less remarkable than those in the lower canyon. The recreational fishing opportunities are outstandingly remarkable due to the accessible and well stocked fishery. There is a road that parallels much of this segment. The lower portion is diverted which effects the river's free-flowing nature. There are power lines in the corridor, and substantial development around the fish hatchery. Recreational classification is appropriate.
Questa	46	Red River	From Goose Creek to canyon mouth below Hwy 522	Not Eligible	This segment is not free-flowing. It runs through the town of Red River and through multiple private inholdings. As alluded to by the previous evaluation, the free-flowing condition has been highly modified by construction of Highway 38, multiple stream crossings, and channelization. The same is true downstream through the canyon where there are additional impacts from the mine and the town of Questa.

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
Questa	47	Rio Hondo	Headwaters to Long Canyon	Not Eligible	No outstandingly remarkable values identified. Southern side is private land.
Questa	48	Rio Hondo	From headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Questa	49	Rito Claro	Headwaters to Cabresto Creek	Not Eligible	No outstandingly remarkable values identified. Bonito and Italian Canyons do not contain named rivers.
Questa	50	Rito del Medio	Headwaters to Forest boundary	Not Eligible	White-tailed ptarmigan is rare, and its habitat is rare regionally. However, most high alpine streams provide potential habitat (willow), the same habitat is found outside of stream corridors, and white-tailed ptarmigan are not stream dependent (not directly river related). There is nothing about this segment of Rito del Medio that makes it more important to ptarmigan than any other high alpine stream. RMBH are common regionally, and their habitat is not directly river related.
Questa	51	Rito Primero	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified. Peñasquito and Jaracito Canyons do not contain a named stream.
Questa	52	San Cristobal Creek	From headwaters to Forest boundary	Not Eligible	There is a diversion for the community water supply and acequia system just below the wilderness boundary. The creek is not free flowing below this point. RMBH population is not outstandingly remarkable regionally, and not directly river related. There are Rio Grande cutthroat trout in the upper sections, but there is no barrier that separates this section. The riparian values are not outstandingly remarkable regionally.
Questa	53	Sawmill Creek	From headwaters to East Fork	Wild (scenic, historic)	The Sangre de Cristo pea clam is only found in Middle Fork Lake. RMBH and boreal owls are not outstandingly remarkable regionally. Arizona willow is not outstandingly remarkable regionally. Elizabethtown ditch no longer diverts water, but historically started on the Middle Fork, collected water from the East Fork and Sawmill Creek, and carried it to the east slopes of the Sangre de Cristo mountains. Wild classification is appropriate.
Questa	54	Shuree Creek	Headwaters to Middle Ponil Creek	Not Eligible	No outstandingly remarkable values identified. Free flow has been effected by Shuree Ponds.
Questa	55	South Fork	From headwaters to private land boundary	Not Eligible	RMBH population is not outstandingly remarkable regionally, and not directly river related. The scenic and riparian values are not outstandingly remarkable compared to other similar regional rivers. Rio Grande cutthroat trout populations are genetically pure, but non-native species are present, and there is not a full barrier that separates this section.

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
Questa	56	Springwagon Creek	From headwaters to Comanche Creek	Not Eligible	No outstandingly remarkable values identified. There is not usually enough flow to support Rio Grande cutthroat trout. To the extent that this river provides Rio Grande cutthroat trout habitat, it is being protected indirectly as a tributary to Comanche Creek which is eligible.
Questa	57	Vidal Creek	From headwaters to Comanche Creek	Wild (scenic, fish)	The elk calving areas are not outstandingly remarkable regionally, and not directly river related. Clayton camp has multiple intact historic structures, but is not outstandingly remarkable regionally. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
Questa	58	West Fork	From headwaters to Middle Fork	Not Eligible	The Sangre de Cristo pea clam is only found in Middle Fork Lake. RMBH and boreal owls are not outstandingly remarkable regionally. Arizona willow is not outstandingly remarkable regionally. The Elizabethtown ditch did not connect the West Fork.
Questa	59	West Latir Creek	Forest boundary to forest boundary	Not Eligible	No outstandingly remarkable values identified. Peñasquito and Jaracito Canyons do not contain a named stream.
Questa	60	Willow Fork	From headwaters to Placer Fork	Wild (fish)	RMBH are common in the region, and are not directly river related. Rio Grande cutthroat trout populations are genetically pure, no non-native species are present, and there is a full barrier that separates this section. Wild classification is appropriate.
Questa	61*	Yerba Canyon	From headwaters to private land boundary	Not Eligible	RMBH population is not outstandingly remarkable regionally, and not directly river related. The scenic and riparian values are not outstandingly remarkable compared to other similar regional rivers. Rio Grande cutthroat trout populations are genetically pure, but non-native species are present, and there is not a full barrier that separates this section.
Questa	62	Bitter Creek	From private land to Red River	Not Eligible	Bitter Creek has a long history of human use and modification. It was previously dammed and there are still dams on private land above this section. The stream channel has been altered by mining and mills and subsequent remediation. It is rerouted, though no longer impounded. Portions of this segment are incised in the old road. Rio Grande cutthroat trout populations are genetically pure but there is not a complete barrier. The geothermal head scar geologic features are above this section, and are not regionally outstandingly remarkable. The Anchor and Midnight mine sites are also above this section. No other

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
					outstandingly remarkable historic values were found in this segment.
Questa	63	Gold Creek	From headwaters to private land boundary	Not Eligible	This segment is on the La Belle private property.
Questa	64	Costilla Creek	From fish barrier to Forest boundary	Recreational (scenic, recreational)	Riparian values are not outstandingly remarkable regionally. Non-native species are present below the fish barrier. The deep narrow canyon was judged to be outstandingly remarkable for scenery. This is a very popular fly-fishing stream. Recreational classification is appropriate.
Questa	65*	Jiron Canyon	From headwaters to Cabresto Creek	Not Eligible	Rio Grande cutthroat trout are present but there are also non-native trout species, and there is no barrier that separates this segment. No additional outstandingly remarkable values have been identified.
Questa	66*	Long Canyon	From headwaters to Rio Hondo	Not Eligible	RMBH population is not outstandingly remarkable regionally, and not directly river related. The scenic and riparian values are not outstandingly remarkable compared to other similar regional rivers. Rio Grande cutthroat trout presence is unknown and genetics have not been tested, but there is not a full barrier that separates this section.
Tres Piedras	1	American Creek	Headwaters to Rio Tusas	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	2	Apache Creek	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	3	Arkansas Creek	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	4	Arroyo Aguaje de la Petaca	Forest boundary to Forest boundary	Not Eligible	Carson reservoir and inholdings in the middle of this segment affect free flow. No outstandingly remarkable values identified.
Tres Piedras	5	Arroyo Aguaje de la Petaca	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	6	Arroyo Gavilan	Forest boundary to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	7	Ashbury Arroyo	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	8	Beaver Creek	Headwaters to private land boundary	Not Eligible	None of the previously identified outstandingly remarkable values are outstandingly remarkable regionally. No additional outstandingly remarkable values have been identified.
Tres Piedras	9	Cañada Biscara	Headwaters to Rio Tusas	Not Eligible	Contains a pit tank which impounds water and effects free-flow. No outstandingly remarkable values identified.

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
Tres Piedras	10	Cañada Comanche	Headwaters to Forest boundary	Not Eligible	A pit tank impounds water and effects free-flow. No outstandingly remarkable values identified.
Tres Piedras	11	Cañada de la Agua	Headwaters to Rio Tusas	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	12	Cañada de los Comanches	Headwaters (in El Rito Ranger District) to Forest boundary	Not Eligible	Several pit tanks impound water and effect free-flow. No outstandingly remarkable values identified.
Tres Piedras	13	Cañada de los Ranchos	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	14	Cañada del Oso	Headwaters to Lola Creek	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	15	Cañada Embudo	Headwaters to Forest boundary	Not Eligible	This segment is not free-flowing. It contains 3 pit tanks that impound water. No outstandingly remarkable values identified.
Tres Piedras	16	Cañada Jarocita	From headwaters to Los Pinos	Not Eligible	No outstandingly remarkable values identified. Cañon Hondo, Atencio, and Florentino do not contain named streams.
Tres Piedras	17	Cañada las Lemitas	Headwaters to Forest boundary	Not Eligible	A pit tank impounds water and effects free-flow. No outstandingly remarkable values identified.
Tres Piedras	18	Cañada Tanques (both forks)	Headwaters to Lola Creek	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	19	Cañada Tio Grande	From headwaters to Rio San Antonio	Not Eligible	Non-native fish are present. No other outstandingly remarkable values were identified.
Tres Piedras	20	Cow Creek	From headwaters to Rio Tusas	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	21	Cruces Creek	Headwaters to Beaver Creek	Not Eligible	This is a tributary of Beaver Creek which was determined to possess no values that are outstandingly remarkable regionally. No additional outstandingly remarkable values have been identified in this tributary.
Tres Piedras	22	Deer Trail Creek	Headwaters to Rio Tusas	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	23	Diablo Creek	Headwaters to Beaver Creek	Not Eligible	None of the previously identified outstandingly remarkable values are outstandingly remarkable regionally. No additional outstandingly remarkable values have been identified.
Tres Piedras	24	Dixie Creek	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
Tres Piedras	25	East Fork Rio Brazos	Headwaters to Forest boundary	Not Eligible	This river was previously misidentified as a tributary of the Rio de los Pinos. None of the previously identified outstandingly remarkable values are outstandingly remarkable regionally.
Tres Piedras	26	Escondido Creek	Headwaters to Diablo Creek	Not Eligible	This is a tributary of Diablo and Beaver Creeks which were determined to possess no values that are outstandingly remarkable regionally. No additional outstandingly remarkable values have been identified in this tributary.
Tres Piedras	27	Lagunitas Creek	From headwaters to Rio San Antonio	Not Eligible	There are 2 pit tanks at the upper end near FR 87 that effect free flow. No outstandingly remarkable values identified.
Tres Piedras	28	Little Tusas Creek	From headwaters to Rio Tusas	Not Eligible	No outstandingly remarkable values identified. Much of this segment runs through private land.
Tres Piedras	29	Lobo Creek	Headwaters to Beaver Creek	Not Eligible	This is a tributary of Beaver Creek which was determined to possess no values that are outstandingly remarkable regionally. No additional outstandingly remarkable values have been identified in this tributary.
Tres Piedras	30	Lola Creek	From headwaters to Los Pinos	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	31	Osha Creek	Headwaters to Beaver Creek	Not Eligible	This is a tributary of Beaver Creek which was determined to possess no values that are outstandingly remarkable regionally. No additional outstandingly remarkable values have been identified in this tributary.
Tres Piedras	32	Osier Creek	Headwaters to Forest boundary	Not Eligible	This segment is not free flowing. It has become channelized in FR 74.
Tres Piedras	33	Osier Fork Rio Brazos	Headwaters to Forest boundary	Not Eligible	This river was previously misidentified as a tributary of the Rio de los Pinos. None of the previously identified outstandingly remarkable values are outstandingly remarkable regionally.
Tres Piedras	34	Placer Creek	From Hopewell Lake to Rio Vallecitos	Not Eligible	The geology in this segment is not outstandingly remarkable regionally. Rock formations are similar to what is found in the Rio Vallecitos canyon. The historic town of Hope is flooded beneath Hopewell Lake. There is other mining evidence in the form of dredging and diversion which effect the free-flowing nature of the river.
Tres Piedras	35	Placer Creek	From headwaters to Hopewell Lake	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	36	Rio de los Pinos	From Colorado border to private land boundary	Recreational (scenic, recreational, geologic)	Rock outcrops and the gorge are outstandingly remarkable scenic and geologic values. The Proterozoic rocks in the Rio de Los Pinos valley are gneiss, schist, and amphibolite intruded by granite and dikes of aplite and pegmatite. Fishing opportunities

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
					and the Cumbres-Toltec railroad are outstanding recreational values. Wildlife viewing opportunities, brown trout habitat, riparian corridor, and wildlife diversity are not outstandingly remarkable regionally. Recreational classification is appropriate due to the parallel railroad.
Tres Piedras	37	Rio de los Pinos	From private land boundary to private land boundary	Recreational (scenic, recreational)	The irrigation diversions are on private land above and below this segment which is free-flowing. Fishing and camping are popular in this segment in the scenic gorge. Recreational classification is appropriate due to parallel FR 284 and developed campgrounds.
Tres Piedras	38	Rio Nutrias	From headwaters to Rio San Antonio	Not Eligible	There are 3 tanks in this section that impound water. The river is not free-flowing. Non-native fish are present. There is no barrier on this section.
Tres Piedras	39	Rio San Antonio	From Stewart Meadows to Forest boundary	Scenic (scenic)	The steep canyon and surrounding plains are outstandingly remarkable scenic values. Geologic and wildlife values are not outstandingly remarkable regionally. The geology is part of a small extension of the Servilleta basalt that makes up the western side of the Taos volcanic field. Scenic classification is appropriate due to FR 87 and FR 118 which parallel most of this segment. There is also a small inholding in the middle of this segment with some development, and range improvements (fences, tanks) in the river corridor.
Tres Piedras	40	Rio San Antonio	From headwaters to Rio Nutrias	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	41	Rio San Antonio	From Rio Nutrias to Stewart Meadows	Not Eligible	The identified Historic outstandingly remarkable value is on private land, and is not outstandingly remarkable regionally. Potential southwestern willow flycatcher habitat is present throughout the region, there is nothing outstandingly remarkable about the habitat here. Stewart meadows are partially formed by low earthen dams that impede free flow. The bridge on FR 87 includes rip-rap and bank hardening that also effect free-flow.
Tres Piedras	42	Rio Tusas	From private land boundary to Tusas Box	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	43	Rio Tusas	From headwaters to section 16 tank	Wild (recreational)	Rio Grande cutthroat trout genetics are unknown, however there is no barrier on this section. This river segment is crossed by Trail 41, and the Continental Divide Trail. In combination with sport fishing opportunities these recreational values are outstandingly remarkable. There is a tank in section 16 that impounds water and affects free flow. This is a scenic area with

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
					small canyons, open meadows, and large aspen stands but it is not outstandingly remarkable. Rio Vallecitos just to the south or areas in the Cruces Basin, or Rio San Antonio just to the north on the district are at least as scenic. There are many more scenic areas in the region of comparison.
Tres Piedras	44	Rio Tusas Box	From Spring Creek to Las Tablas	Not Eligible	The scenery and geology may be remarkable, however the river is not free flowing. Most of this section is private inholdings with irrigated agriculture diverted from the river.
Tres Piedras	45	Rio Vallecitos	From Forest boundary to private land (above Placer Creek)	Not Eligible	There is very little evidence of historic mining and it is not outstandingly remarkable regionally. A few hundred feet of this segment passes through a narrow rocky canyon which is pretty, but not geologically outstandingly remarkable. The rock formations are much less remarkable than the Brazos Cliffs just to the west, or the Tusas Box or Upper Rio de los Pinos canyons on the district. Other than the little narrow canyon the scenery is very unremarkable for Northern New Mexico. Similar scenery is found in many streams in the Rio San Antonio and Cruces Basin area on the district, more outstanding scenery is found in the Valle Vidal on the Carson or the Valles Caldera National Preserve.
Tres Piedras	46	Rock Creek	Headwaters to Rio Vallecitos	Not Eligible	This segment is not free-flowing. The lower portion contains multiple pit tanks. No outstandingly remarkable values identified.
Tres Piedras	47	Sawmill Creek	Headwaters to Rio Tusas	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	48	Scott Arroyo	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.
Tres Piedras	49	Tanques Canyon	From headwaters to Rio Nutrias	Not Eligible	Tanques (tanks in English) Canyon contains 2 pit tanks which impound water. The river is not free-flowing. Non-native fish are present.
Tres Piedras	50	Toltec Creek	Forest Boundary to private land	Wild (scenic, recreational)	The headwaters in Colorado are eligible for their scenic, recreational, and historic values. The Cumbres and Toltec railroad is not within the ¼ mile corridor on the Carson National Forest, and there are no other outstandingly remarkable historic values on the New Mexico side. Toltec canyon is a remote, steep, and narrow canyon that is outstandingly remarkable for its scenic and recreational values. Wild classification is appropriate, as the surroundings are generally primitive.
Tres Piedras	51	West Fork Rio Brazos	Headwaters to Forest boundary	Not Eligible	No outstandingly remarkable values identified.

Ranger District	ID	River Segment	River Segment Location	Classification (ORVs)	Narrative Description of Outstandingly Remarkable Values
Tres Piedras	52	Rio Tusas	From section 16 tank to private land	Not Eligible	No outstandingly remarkable values identified.

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## Appendix H – Species Crosswalk: Plan Components for At-Risk Wildlife Species and Other Wildlife

These crosswalks compile forest plan guidance intended to increase persistence of at-risk species. Plan components consist of coarse-filter and fine-filter approaches and demonstrate the widespread but detailed attention the forest plan provides for managing ecosystems for the persistence of each at-risk species (Section 1). Plan components that address the issues and threats that are impacting at-risk species are also compiled ([Section 2](#)). Several comments and requests from the public were made concerning how lynx is covered in the Carson National Forest's draft proposed plan and that the Southern Rockies Management Direction be included in the Carson's draft proposed plan. The Southern Rockies Management Direction crosswalk ([Section 3](#)) demonstrates Carson National Forest's draft proposed plan components that correspond to this direction. Finally, wildlife connectivity is addressed through a variety of coarse- and fine-filter plan components in multiple resource areas ([Section 4](#)).

The Carson National Forest has identified 32 at-risk species, six of these species are federally listed threatened or endangered while 26 species have been identified at Species of Conservation Concern (SCC) (Section 1). Through analysis of known data and scientific literature, eight (8) issues and six (6) threats have been identified as negatively impacting the persistence of at-risk species on the forest ([Section 2](#)).

If someone is interested in what the forest is doing for any particular at-risk species, it would be difficult to find that individual species in one place in the forest plan. Rather, the forest is managing the ecological conditions that may negatively be impacting each at-risk species. This, in turn, improves conditions not just for at-risk species, but for a myriad of other species dependent upon those same ecological conditions. In addition, since wildlife can be impacted by numerous resources and activities (ex. vegetation, water, roads, recreation, range, etc.) wildlife plan components are integrated throughout multiple resource sections within the forest plan and the full scope of plan components for any species is not evident in only the wildlife section. These crosswalks pull together all the plan components and management approaches in one location to better demonstrate how the forest will manage for the persistence of each at-risk species.

### Section 1. At-Risk Species Crosswalk by Species

The Carson National Forest has identified 32 at-risk species, six of these species are federally listed threatened or endangered while 26 species have been identified as species of conservation concern (SCC).

## Federally Listed Species

### Mexican Spotted Owl

*Strix occidentalis lucida* is federally threatened species and has designated critical habitat (22,954 acres) on the Jicarilla Ranger District. Numerous surveys throughout the forest have not confirmed breeding of this species on the Carson National Forest since the critical habitat designation. This species is non-migratory and feeds primarily on small mammals. The Mexican spotted owl requires a variety of mixed conifer habitats, proximity to riparian areas, standing snags for roosting and nesting, and typically rocky outcrops. Timber management activities negatively affected habitat before the Mexican spotted owl was listed as threatened in 1995. Timber harvest, prescribed burning, and other management activities are designed following the Mexican Spotted Owl Recovery Plan 2012 along with consultation with the USFWS. These management activities can still have disturbance affects to the Mexican spotted owl and its habitat. The plan components (coarse and fine filter) that address ecological condition and threats for the Mexican spotted owl are listed in table 60.

**Table 60. Plan Components (coarse and fine filter) that address ecological condition and threats for Mexican spotted owl**

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Mixed-conifer with frequent fire  Mixed-conifer with Aspen  Ponderosa pine forests  Riparian areas	Seral state departure  Snag density departure  Catastrophic fire  Specific ecological features	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-12, FW-VEG-VEG-DC 19-20, FW-VEG-MCW-DC 1-9, FW-MCW-DC 12, FW-VEG-MCD-DC 1-6, FW-VEG-MCD-DC 8-11, FW-VEG-MCD-DC 19-20, FW-VEG-PPF-DC 1-4, FW-VEG-PPF-DC 6-8, FW-VEG-PPF-DC 10, FW-VEG-PPF-DC 12, FW-VEG-PPF-DC 15-18, FW-WSW-DC 1-3, FW-WSW-RMZ-DC 1-5, FW-WSW-RMZ-DC 7, FW-WSW-RMZ-DC 9, FW-WSW-RMZ-WR-DC 1,FW-WSW-RMZ-WR-DC 3, FW-WSW-RMZ-FSR-DC1-3, FW-WSW-RMZ-FSR-DC 5-6, FW-CRF-DC 1-2, FW-WFP-DC 1-2, FW-WFP-DC 6, FW-FIRE-DC 1-2 FW-FIRE-DC 4-5, FW-FPP-DC 1, FW-FPP-DC 4, FW-FPP-DC 5,FW-TFA-DC 5, FW-MM-DC 1, DA-WILD-DC 2-4, MA-JICMA-DC 1, MA-RWMA-DC 1-4 MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 3, FW-VEG-MCD-O 1-2, FW-VEG-PPF-O 1-2, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-STM-G 2,FW-CRF-G 1, FW-WFP-O 1-2, FW-FFP-S 1-2, FW-FFP-S 5, FW-FFP-G 1, FW-TFA-O 1, FW-TFA-S 3, DA-WSR-S 1-2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-2, FW-VEG-PPF-G 1, FW-WSW-DC 5, FW-WSW-RMZ-FSR-G 3, FW-WFP-DC 1-3, FW-WFP-G 1-2, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6,

### Southwestern Willow Flycatcher and Western Yellow-billed Cuckoo

Southwestern willow flycatcher has designated critical habitat (148 acres) on the Camino Real Ranger District where it is federally listed as endangered. This species relies on dense riparian areas, usually dominated by willow species (forest and shrub riparian vegetation communities). Threats include degradation of riparian habitat through the loss willow and cottonwoods density and recruitment, reduction in in-stream flow, invasive species encroachment, and nest parasitism by the brown-headed cowbird.

Western yellow-billed cuckoo is federally listed as threatened west of the Rio Grande (distinct population segment), and no critical habitat has been designated on the Carson National Forest for this species. Western yellow-billed cuckoo inhabits dense riparian habitat greater than 200 acres (81 hectares) in size (Poole 2018) and below 7,000 elevational feet (Howe & Hanberg 2000) in the western U.S. Western yellow-billed cuckoo has not been documented on the Carson, and the dense riparian habitat it inhabits is extremely rare on the Carson National Forest. Ecosystems that could support western yellow-billed cuckoo is forest, shrub, and scrub riparian below 7,000 elevational feet, and include narrowleaf cottonwood-shrub and Rio Grande cottonwood-shrub habitat. It is possible that the species uses the Carson National Forest as migratory habitat. The major threat faced is degradation of riparian habitat through the loss of cottonwoods density and recruitment, reduction in in-stream flow, and invasive species encroachment. They are also susceptible to collisions with tower and turbine.

**Table 61. Plan Components (coarse and fine-filter) that address ecological condition and threats for southwestern willow flycatcher and western yellow-billed cuckoo**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)</b>
Riparian areas  Forest and Shrub Riparian	Seral state departure  Catastrophic fire  Invasive vegetative encroachment  Disconnected floodplains  Specific ecological features  Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-WSW-DC 1-2, FW-WSW-DC 6, FW-WSW-RMZ-DC 1-8, FW-WSW-RMZ-FSR-DC 1-5, FW-WSW-RMZ-FSR-DC 8, FW-WFP-DC 4-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-WSW-O 1, FW-WSW-G 1-2, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-3, FW-WFP-O 1, FW-WFP-O 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-3, FW-GRZ- S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-FSR-DC 12, FW-WSW-RMZ-FSR-G 1-3, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

## Black-footed Ferret

Black-footed ferret is a federally listed as endangered, and no critical habitat has been designated on the Carson National Forest. This species relies on montane subalpine grassland and sagebrush shrubland vegetation communities, and is highly dependent on the presence of prairie dog colonies of at least 80 to 100 acres in size depending upon the prairie dog species (USDI FWS 2013). Currently, there are no prairie dog colonies of this magnitude on the Carson National Forest, and black-footed ferret are not currently known to occur on the Carson. Black-footed ferrets spend about 90 percent of their time underground, where they eat, sleep and raise their young in prairie dog burrows. Prairie dogs make up the majority of the black-footed ferret's diet. Threats include loss of habitat as prey base (prairie dogs) and are affected by sylvatic plague.

**Table 62. Plan Components (coarse and fine filter) that address ecological condition and threats for black-footed ferret**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, Guidelines and Management Approaches (Fine Filter)</b>
Montane Subalpine Grassland  Sagebrush shrubland	Intrusive human disturbance  Unnatural disease spread  Human-made features	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-VEG-MSG-DC 1-4, FW-VEG-MSG-DC 10, FW-VEG-MSG-DC 14, FW-VEG-SAGE-DC 1-4, FW-NIS-DC 1, FW-GRZ-DC 4, FW-TFA-DC5, FW-SU-DC 7, MA-GMMA-DC 1-3	FW-VEG-G 1-3, FW-WFP-O 1, FW-WFP-O 4, FW-WFP-G 1-2, FW-WFP-G 6, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-3, FW-GRZ-S 3, FW-REC-G 3, FW-FAC-G 2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WFP-DC 1-3, FW-WFP-DC 7, FW-WFP-G 1-2, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6, WFP MANAGEMENT APPROACH 10

## Canada Lynx

On March 24, 2000, the USFWS published the final rule listing the contiguous United States distinct population segment of Canada lynx as a threatened species (65 FR 16052). Lynx habitat was not ranked for core, secondary, or even peripheral for the Carson National Forest (USDI FWS 2005), critical habitat has not been designated on the Carson (USDI FWS 2018), and is currently not known to den or breed on the national forest. Occasionally an individual lynx may roam out of Colorado onto the national forest. In New Mexico, this species is a habitat specialist confined largely to mid- to high elevation boreal and subalpine spruce-fir forests at 9,800 to 12,000 feet in elevation (Koehler & Brittell 1990; Ruggiero et al. 1999) that can maintain the presence of deep snow. Lynx do not typically reside on the Carson National Forest because the forest lacks the aforementioned physical and biological features necessary to sustain a population (USDI FWS 2014a). Management threats include departure of seral state condition through loss of dense spruce-fir forest, loss of coarse woody debris per acre, and loss of snow depth and retention. Disturbance from motorized road construction, over-snow motorized travel, recreation are also threats. [Section C](#) of this appendix demonstrates how the Carson National Forest’s draft proposed plan components correspond to the Southern Rockies Management Direction. Also [section D](#) of this appendix demonstrates how habitat connectivity for wildlife is addressed through Carson National Forest’s draft proposed plan components.

**Table 63. Plan Components (coarse and fine filter) that address ecological condition and threats for Canada lynx**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)</b>
Spruce fir forests Riparian areas Coarse woody debris	Seral State Departure  Coarse woody debris departure  Catastrophic fire  Intrusive human disturbance	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-12, FW-VEG-DC 20, FW-VEG-SFF-DC 1-4, FW-VEG-SFF-DC 7-10, FW-VEG-SFF-DC 12, FW-VEG-SFF-DC 15, FW-VEG-ASP-DC 2, FW-VEG-ASP-DC 4, FW-WSW-DC 1-3, FW-WSW-RMZ-DC 1-5, FW-WSW-RMZ-DC 7, FW-WSW-RMZ-DC 9, FW-WFP-DC 5, FW-WFP-DC 9, FW-FIRE-DC 1-2 FW-FIRE-DC 4-5, FW-FPP-DC 1, FW-FPP-DC 4, FW-FPP-DC 5, FW-TFA-DC 4-5, FW-SU-DC 7, FW-MM-DC 1, DA-WILD-DC 2-4, MA-RWMA-DC 1-4, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 3, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-3, FW-WFP-O 1-2, FW-VEG-ASP-G 1, FW-WFP-O 4, FW-WFP-O 5, FW-WFP-G 6, FW-WFP-G 8, FW-REC-S 1-2, FW-REC-G 2-3, FW-FFP-S 1-2, FW-FFP-S 5, FW-FFP-G 1, FW-TFA-O 1, FW-TFA-S 1-3, FW-TFA-G 1-2, FW-FIRE-S 1, FW-FIRE-G 1, FW-FIRE-G 7-8, DA-WSR-S 1-2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-2, FW-FW-WSW-DC 5, FW-WFP-DC 1-3, FW-WFP-DC 7, FW-WFP-G 1-2, WFP MANAGEMENT APPROACH 1-6

## New Mexico Meadow Jumping Mouse

New Mexico meadow jumping mouse is federally listed as endangered, and no critical habitat has been designated on the Carson National Forest. This species occurs in dense mid-elevation riparian areas (Wetland and Forest and Shrub Riparian) with dense and tall grass key ecosystem characteristics in the Western U.S. It was historically documented on the Carson, but surveys on the forest were unable to detect this species (Frey 2006). The Carson National Forest currently has potential habitat for this species, but it is limited and highly fragmented. The major threats faced are the degradation of riparian habitat caused by actions such as legacy grazing, post-wildfire flooding events, and unmanaged recreation. Off the forest, agricultural uses and development of land have permanently changed historic locations.

**Table 64. Plan Components (coarse and fine filter) that address ecological condition and threats for New Mexico meadow jumping mouse**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)</b>
Riparian areas Wetland Riparian Forest and Shrub Riparian	Seral state departure Catastrophic fire Invasive vegetative encroachment Disconnected floodplains Specific ecological features Intrusive human activity	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-SL-DC 1, FW-WSW-DC 1-2, FW-WSW-DC 5, FW-WSW-RMZ-DC 1-8, FW-WSW-RMZ-DC 7-8, FW-WSW-RMZ-STM-DC 1, FW-WSW-RMZ-STM-DC 4, FW-WSW-RMZ-STM-DC 6, FW-WSW-RMZ-STM-DC 9, FW-WSW-RMZ-STM-DC 11, FW-WSW-RMZ-SNS-DC 1, FW-WSW-RMZ-WR-DC 1, FW-WSW-RMZ-WR-DC 3, FW-WSW-RMZ-FSR-DC 1-5, FW-WSW-RMZ-FSR-DC 8, FW-WSW-RMZ-FSR-DC 12, FW-WFP-DC 3-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-WSW-O 1, FW-WSW-G 1-2, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-STM-O 1, FW-WSW-RMZ-STM-S 1, FW-WSW-RMZ-STM-G 1, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-SNS-G 1, FW-WSW-RMZ-FSSR-G 2 FW-WFP-O 1, FW-WFP-O 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-3, FW-GRZ-S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-FSR-G 1-3, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

## Species of Conservation Concern

### American Peregrine Falcon

American peregrine falcons (*Falco peregrinus anatum*) are breeding or permanent residents within the Carson National Forest. This species nests in cliffs and rock outcrops, a key ecosystem characteristic found within all vegetation communities of the national forest. Nesting habitat is created by geologic factors and has not changed significantly. Threats include disturbance from recreational rock climbing (Poole 2018), collection of young for falconry, eggshell thinning from accumulated pesticides, and illegal shooting. Disturbance near active nests can displace individuals and cause nest abandonment (Poole 2018) when reasonable precautions are not taken. Many of the activities that may be threats to peregrine falcons are not under the authority of the Forest Service or occur on other land ownerships.

**Table 65. Plan components (coarse and fine filter) that address ecological condition and threats for American peregrine falcon**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)</b>
Mixed-conifer with frequent fire  Mixed-conifer with Aspen  Ponderosa pine forest  Cliff faces	Specific ecological features  Intrusive human activity  Human-made features  Chemical applications	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-VEG-ALP-DC 1-3, FW-VEG-MSG-DC 1-2, FW-VEG-MSG-DC 10, FW-VEG-MCW-DC1-2, FW-VEG-MCW-DC 5, FW-VEG-MCD-DC 1-2, FW-VEG-PPF-DC 1-2, FW-VEG-PJO-DC 1-2, FW-VEG-PJS-DC 1-2, FW-SL-DC 6, FW-WSW-DC 1, FW-WSW-DC 5, FW-WSW-RMZ-DC 1-5, FW-CRF-DC 1-3, FW-WFP-DC 9, FW-AIR-DC 4, FW-TFA-DC 4-5, FW-SU-DC 7, FW-MM-DC 1	FW-VEG-G 3, FW-VEG-ALP-G 1, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WFP-O 1, FW-WFP-G 6, FW-REC-S 2, FW-REC-G 3-5, FW-TFA-O 1 FW-TFA-G 9, FW-SU-S 2, FW-SU-G 1, FW-SU-G 4-5, DA-WSR-S 1-2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 18, FW-VEG-DC 21, FW-VEG-G 1-2, FW- FW-WSW-DC 5, FW-CRF-G 1-3, CRF MA 1-3, FW-WFP-DC 1-3, FW-WFP-DC 7, FW-WFP-G 1-3, WFP MANAGEMENT APPROACH 1- 2, WFP MANAGEMENT APPROACH 7

## Northern Goshawk

The northern goshawk (*Accipiter gentilis*) is a forest habitat generalist that uses a wide variety of forest ages, structural conditions and successional stages, most of which are departed from reference because of fire suppression activities and, in some cases, stand-replacing fire (Reynolds et al. 1992). Although the departure from reference in Ponderosa pine forests has created closed canopy conditions beneficial to Northern goshawks they remain extremely vulnerable to catastrophic fire which can greatly alter/reduce optimal habitat. This species can be found within every district of the Carson National Forest, where post-fledgling family areas are identified and managed. Several of these post-fledgling family areas have been abandoned for unknown reasons, but several new post-fledgling family areas have been established on the Carson National Forest (Cortez 2018). This species is primarily associated with mixed conifer with aspen, mixed conifer frequent fire, and ponderosa pine vegetation communities and aquatic ecosystems.

**Table 66. Plan components (coarse and fine filter) that address ecological condition and threats for northern goshawk**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)</b>
Mixed-conifer with frequent fire  Mixed-conifer with Aspen  Ponderosa pine forests  Riparian areas	Seral state departure  Catastrophic fire  Specific ecological features	FW-VEG-DC 1-5, FW-VEG-DC 10-12, FW-VEG-DC 20, FW-VEG-SFF-DC 1-3, FW-VEG-SFF-DC 7-12, FW-VEG-MCW-DC 1-5, FW-MCW-DC 8-9, FW-MCW-DC 12, FW-VEG-MCD-DC 1-5, FW-VEG-MCD-DC 8-11, FW-VEG-MCD-DC 19-20, FW-VEG-PPF-DC 1-6, FW-VEG-PPF-DC 8, FW-VEG-PPF-DC 10, FW-VEG-PPF-DC 12, FW-VEG-PPF-DC 15-18, FW-WSW-DC 1-3, FW-WSW-RMZ-DC 1-5, FW-WSW-RMZ-DC 7, FW-WSW-RMZ-DC 9, FW-WSW-RMZ-WR-DC 1,FW-WSW-RMZ-WR-DC 3, FW-WSW-RMZ-FSR-DC1-3, FW-WSW-RMZ-FSR-DC 5-6, FW-WFP-DC 1-2, FW-WFP-DC 6, FW-FIRE-DC 1-2 FW-FIRE-DC 4-5, FW-FPP-DC 1, FW-FPP-DC 4, FW-FPP-DC 5,FW-TFA-DC 5, FW-MM-DC 1, DA-WILD-DC 2-4, MA-JICMA-DC 1, MA-RWMA-DC 1-4 MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 3, FW-VEG-MCD-O 1-2, FW-VEG-PPF-O 1-2, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-STM-G 2, FW-WFP-O 1-2, FW-FFP-S 1-2, FW-FFP-S 5, FW-FFP-G 1, FW-TFA-O 1, FW-TFA-S 3, DA-WSR-S 1-2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-2, FW-VEG-SFF-DC 13, FW-VEG-SFF-G 2-5, FW-VEG-ASP-G 2-4, FW-VEG-MCW-DC 10, FW-VEG-MCW-G 3-6, FW-VEG-MCD-DC 12, FW-VEG-MCD-G 3-5, FW-VEG-PPF-DC 13, FW-VEG-PPF-G 1, FW-VEG-PPF-G 5-8, FW-WSW-DC 5, FW-WSW-RMZ-FSR-G 3, FW-WFP-DC 1-3, FW-WFP-DC 9, FW-WFP-G 1-3, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

## Pinyon Jay

Pinyon jay (*Gymnorhinus cyanocephalus*) are primarily piñon-juniper woodland obligates, but will use other habitat if piñon-juniper woodland does not exist (Wiggins 2005). They are found throughout piñon-juniper woodlands and piñon-juniper sagebrush on the Carson National Forest. Although predicted to remain in low departure from reference conditions piñon-juniper habitats are predicted to have the greatest variation within the forest when it comes to climate change vulnerability. Pinyon jay are synchronized, colonial nesters that commence breeding in the cold of winter in areas where pine-seed crops were abundant the previous autumn (Poole 2018). Currently, the primary threats to pinyon jay population persistence is a widespread die-off of piñon pine in the southwestern United States, together with departure in seral state conditions from loss of dense and old growth piñon-juniper woodlands, changes in fire regime, and from stand-replacing fire (Wiggins 2005).

**Table 67. Plan components (coarse and fine filter) that address ecological condition and threats for pinyon jay**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)</b>
Piñon-Juniper Woodlands  Piñon-Juniper Sagebrush	Seral state departure  Catastrophic fire	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-12, FW-VEG-DC 20, FW-VEG-PJO-DC 1, FW-VEG-PJO-DC 3, FW-VEG-PJO-DC 6-7, FW-VEG-PJO-DC 9-10, FW-VEG-PJO-DC 12-13, FW-VEG-PJS-DC 1, FW-VEG-PJS-DC 6-7, FW-VEG-PJS-DC 15, FW-WFP-DC 1-2, FW-WFP-DC 6, FW-FIRE-DC 1-2 FW-FIRE-DC 4-5, FW-FPP-DC 1, FW-FPP-DC 4, FW-FPP-DC 5,FW-TFA-DC 5, FW-MM-DC 1, DA-WILD-DC 2-4, MA-JICMA-DC 1, MA-RWMA-DC 1-4 MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 3, FW-WFP-O 1-2, FW-FFP-S 1-2, FW-FFP-S 5, FW-FFP-G 1, FW-TFA-O 1, FW-TFA-S 3, DA-WSR-S 1-2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-2, FW-VEG-PJO-G 1-2, FW-WFP-DC 1-2, FW-WFP-G 1-2, WFP MANAGEMENT APPROACH 1-2, WFP MANAGEMENT APPROACH 6,

## Western Burrowing Owl and Gunnison Prairie Dog

Burrowing owls (*Athene cunicularia hypugaea*) are known to use all lower elevation grassland ecological conditions of the Carson National Forest. They nest and roost in recently abandoned burrows dug by mammals, including ground squirrels, prairie dogs, and badgers (Green and Anthony 1989). For this reason, persistence of burrowing owls is inextricably linked to that of burrowing mammals, including prairie dogs. Threats to this species on the Carson National Forest include threats to burrowing mammals, such as Gunnison's prairie dogs, from sylvatic plague (Finch 1992).

Gunnison prairie dogs (*Cynomys gunnisoni*) are associated with meadow and grassland habitats where fine soil material is deep enough to allow for construction of burrows. Despite the extensive grasslands on Carson National Forest, prairie dogs were very uncommon (Frey 2003a). Threats include recreational shooting and sylvatic plague (Finch 1992, USFS 2013). Due to its decreased range on the Carson National Forest, sylvatic plague can be a limiting factor and eliminate colonies in one season preventing them from reaching a sustainable population and colonizing areas formerly occupied.

**Table 68. Plan components (coarse and fine filter) that address ecological condition and threats for western burrowing owl and Gunnison prairie dog**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, Guidelines and Management Approaches (Fine Filter)</b>
Montane Subalpine Grassland Sagebrush shrubland	Intrusive human disturbance Unnatural disease spread Human-made features	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-VEG-MSG-DC 1-4, FW-VEG-MSG-DC 10, FW-VEG-MSG-DC 14, FW-VEG-SAGE-DC 1-4, FW-WFP-DC 5, FW-WFP-DC 9, FW-NIS-DC 1, FW-GRZ-DC 4, FW-TFA-DC5, FW-SU-DC 7, MA-GMMA-DC 1-3	FW-VEG-G 1-3, FW-WFP-O 1, FW-WFP-O 4, FW-WFP-G 6, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-3, FW-GRZ-S 3, FW-REC-G 3, FW-FAC-G 2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 20, FW-VEG-G 1-3, FW-WFP-DC 1-3, FW-WFP-DC 7, FW-WFP-G 1-2, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6, WFP MANAGEMENT APPROACH 10

## White-tailed Ptarmigan

White-tailed ptarmigan (*Lagopus leucura*) inhabits moist vegetation near snowfields, streams, and willow-dominated (*Salix* spp.) plant communities within alpine and tundra habitat. Buds and twigs of various species of *Salix* provide the bulk of the food eaten by white-tailed ptarmigan. Rocky areas near late-lying snowfields or other moist sites become important from mid-summer to early fall. Rocks provide protection from the weather and hiding cover from avian predators (Hoffman 2006). In winter, according to work by Choate (1963), ptarmigan occupy rocky areas and patches of krummholz. According to Wolfe and others (2012), there are an estimated 100 to 200 individual white-tailed ptarmigan found within the alpine and tundra habitat of the Carson National Forest. Major threats to this species include departure of herbaceous understory vegetation through loss of willow and willow recruitment and human disturbance during breeding (NMDGF 2017).

**Table 69. Plan components (coarse and fine-filter) that address ecological condition and threats for white-tailed ptarmigan**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, Guidelines and Management Approaches (Fine Filter)</b>
Alpine and Tundra	Seral state departure  Intrusive human disturbance  Human-made features	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-VEG-ALP-DC4, FW-CRF-DC 1, FW-CRF-DC 3, FW-WFP-DC 5-6, FW-WFP-DC 9, FW-NIS-DC 1, FW-GRZ-DC 3-4, FW-TFA-DC 4-5, FW-SU-DC 7, DA-WILD-DC 2-4, MA-RWMA-DC 1-4 MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-WFP-O 1, FW-WFP-O 4, FW-WFP-G 6, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-3, FW-GRZ-S 1, FW-GRZ-G 1, FW-REC-G 1, FW-REC-G 5, FW-TFA-G 9-10, FW-FAC-G 2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-VEG-ALP-DC 6-7, FW-VEG-ALP-G 1-2, FW-WFP-DC 1-3, FW-WFP-DC 7, FW-WFP-G 1-2, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6, WFP MANAGEMENT APPROACH 10

## Wilson's Warbler

Wilson's warbler (*Cardellina pusilla*) inhabit Rocky Mountain mesic shrub thickets consisting of willow, bog birch, and shrubby cinquefoil (Poole 2018). The Carson National Forest is the most southern distribution for this species (NMPIF 2018). They are associated with forest, shrub, and scrub riparian vegetation communities. Threats include degradation of riparian habitat through the loss willow density and recruitment, reduction of in-stream flow, and invasive species encroachment (Johnson & Anderson 2003).

**Table 70. Plan components (coarse and fine-filter) that address ecological condition and threats for Wilson's warbler**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)</b>
Riparian areas  Forest and Shrub Riparian	Seral state departure  Catastrophic fire  Invasive vegetative encroachment  Disconnected floodplains  Specific ecological features  Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-WSW-DC 1-2, FW-WSW-DC 6, FW-WSW-RMZ-DC 1-8, FW-WSW-RMZ-FSR-DC 1-5, FW-WSW-RMZ-FSR-DC 8, FW-WFP-DC 4-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-WSW-O 1, FW-WSW-G 1-2, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-3, FW-WFP-O 1, FW-WFP-O 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-3, FW-GRZ-S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-FSR-DC 12, FW-WSW-RMZ-FSR-G 1-2, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

## Northern Leopard Frog and Western Boreal Toad

Northern leopard frogs (*Lithobates pipiens*) are generally associated with slow-moving, permanent, or semi-permanent bodies of water (Christman 2010; Smith & Keinath 2007). However, this species is also dependent upon a multitude of ecological conditions and habitat connectivity to meet the requirements for all life stages, including wet, upland habitats during the summer (Christman 2010; Merrell 1970; Smith & Keinath 2007). This species is associated with montane and subalpine grasslands, riparian vegetation communities, and aquatic ecosystems.

Western boreal toads (*Anaxyrus boreas*), within the Carson National Forest, is only confirmed at Lagunitas, Canjilon, and Trout lakes (NMDGF 2006). Boreal toads breed in a wide variety of aquatic habitats, ranging from low-elevation beaver ponds, reservoirs, streams, marshes, lakeshores, potholes, wet meadows, and ditches to high-elevation ponds, fens, and tarns (high mountain lakes) at or near treeline (Livo & Lambert 2001; NMDGF 2006). This species is associated with riparian vegetation communities and aquatic ecosystems.

Threats for these species include degradation of habitat caused by grazing, chytrid fungus, depredation by bull frogs (NMDGF 2006; Smith & Keinath 2007), or siltation due to uncharacteristic wildlife and poor road management. Beneficial management includes the development of stock ponds, as northern leopard frogs use these sites for breeding ponds.

**Table 71. Plan components (coarse and fine filter) that address ecological condition and threats for northern leopard frog and western boreal toad**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)</b>
Montane Subalpine Grassland  Riparian areas  Wetland Riparian  Forest and Shrub Riparian	Seral state departure  Catastrophic fire  Specific ecological features  Non-native predation  Unnatural disease spread  Human-made features	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-SL-DC 1, FW-WSW-DC 1-2, FW-WSW-DC 4-5, FW-WSW-RMZ-DC 1-8, FW-WSW-RMZ-STM-DC 1, FW-WSW-RMZ-STM-DC 4, FW-WSW-RMZ-STM-DC 6, FW-WSW-RMZ-STM-DC 9, FW-WSW-RMZ-STM-DC 11, FW-WSW-RMZ-SNS-DC 1, FW-WSW-RMZ-WB-DC 2-3, FW-WSW-RMZ-WB-DC 5, FW-WSW-RMZ-WR-DC 1, FW-WSW-RMZ-WR-DC 3, FW-WSW-RMZ-FSR-DC 1-5, FW-WSW-RMZ-FSR-DC 8, FW-WSW-RMZ-FSR-DC 12, FW-WFP-DC 4, FW-WFP-DC 6-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-WSW-O 1, FW-WSW-G 1-2, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-STM-O 1, FW-WSW-RMZ-STM-S 1, FW-WSW-RMZ-STM-G 1, FW-WSW-RMZ-WB-S 1, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-SNS-G 1, FW-WSW-RMZ-FSSR-G 2 FW-WFP-O 1, FW-WFP-O 5, FW-NIS-O 1, FW-NIS-S 1-2, FW-NIS-G 1-3, FW-NIS-G 6, FW-GRZ-S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, FW-FIRE-G 8, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-FSR-G 1-3, FW-WFP-DC 1-3, FW-WFP-DC 5, FW-WFP-G 1-2, FW-WFP-G 6, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1-4, WFP MANAGEMENT APPROACH 6

### Rio Grande Chub, Rio Grande Cutthroat, and Rio Grande Sucker

*Gila pandora* have declined in range and abundance over the last 100 years and has been extirpated from the mainstem of the Rio Grande River. Populations can be threatened by habitat degradation that includes habitat loss, modification, and fragmentation as well as from interactions with nonnative species. Rio Grande chub impacts on the Carson National Forest include degraded stream and riparian habitat as well as water quality and quantity as a result of inadequately maintained roads and trails, water diversions, livestock grazing, and recreational use. Catastrophic fire and other extreme events such as drought and floods can also impact the species. Competition and predation with nonnative species can be extensive threats to Rio Grande chub populations through predation from brown trout and by competition for food resources with white sucker. Rio Grande chub have been petitioned for listing under the Endangered Species Act.

*Oncorhynchus clarkii virginalis* currently occur in approximately 10 percent of their presumed historic range. These population declines combined with losses in suitable habitat have led to considerable concern over the species' ability to persist over the long term in the plan area. Conservation populations of Rio Grande cutthroat on the Santa Fe National Forest are isolated in high elevation streams above natural and manmade barriers that prevent the upstream movement of nonnative trout that hybridize with, compete with, and prey upon native cutthroat trout. Populations of this species are currently restricted to just 19-34 percent of their historic range within Carson National Forest (USDA Forest Service 2015). Rio Grande cutthroat trout are further threatened by degraded stream and riparian habitat as well as water quality and quantity as a result of inadequately maintained roads and trails, water diversions, livestock grazing, and recreational use. Catastrophic fire and other extreme events such as drought and floods also threaten the persistence of small, isolated populations which, because they occur above migratory barriers, cannot be recolonized naturally.

*Catostomus plebius* are endemic to the Rio Grande drainage and have been extirpated from most of its historic range. Populations can be threatened by habitat degradation that includes habitat loss, modification, and fragmentation as well as from interactions with nonnative species. Rio Grande sucker impacts on the Santa Fe National Forest include degraded stream and riparian habitat as well as water quality and quantity as a result of inadequately maintained roads and trails, water diversions, livestock grazing, and recreational use. Catastrophic fire and other extreme events such as drought and floods can also impact the species. Competition and predation with nonnative species can be extensive threats to Rio Grande Sucker populations through predation from brown trout and by hybridizing and competing for food resources with the white sucker.

**Table 72. Plan components (coarse and fine filter) that address ecological condition and threats for Rio Grande chub, Rio Grande cutthroat trout, and Rio Grande sucker**

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Aquatic Systems	Seral state departure	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-SL-DC 1-3, FW-WSW-DC 1-5, FW-WSW-DC 7, FW-WSW-RMZ-DC 1-8, FW-WSW-RMZ-STM-DC 1-8, FW-	FW-VEG-MCD-O 1-2, FW-VEG-PPF-O 1-2, FW-SL-G 1-2, FW-WSW-O 1, FW-WSW-G 1-2, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-4, FW-WSW-RMZ-STM-O 1-2, FW-WSW-RMZ-	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-STM-DC 9-11, FW-WSW-RMZ-STM-G 3, FW-WSW-RMZ-WB-DC 6, FW-WSW-RMZ-FSR-G 1-3, FW-WFP-DC 1-3,

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)</b>
	<p>Coarse woody debris departure</p> <p>Catastrophic fire</p> <p>Invasive vegetation encroachment</p> <p>Disconnected floodplains</p> <p>Specific ecological features</p> <p>Non-native predation</p> <p>Ground or soil disturbance</p> <p>Intrusive human activity</p> <p>Chemical applications</p>	<p>WSW-RMZ-WB-DC 1-5, FW-WSW-RMZ-SNS-DC 1, FW-WSW-RMZ-SNS-DC 5-7, FW-WSW-RMZ-WR-DC 1-3, FW-WSW-RMZ-FSR-DC 1-6, FW-WSW-RMZ-FSR-DC 8, FW-WSW-RMZ-FSR-DC 12-13, FW-WFP-DC 4, FW-WFP-DC 6, FW-WFP-DC 9-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-SU-DC 7, FW-FIRE-DC 1-6, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2</p>	<p>STM-S 1-2, FW-WSW-RMZ-STM-G 1-2, FW-WSW-RMZ-STM-G 4, FW-WSW-RMZ-WB-S 1-2, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-SNS-G 1, FW-WSW-RMZ-FSSR-G 1-2, FW-WFP-O 1, FW-WFP-O 5, FW-NIS-O 1, FW-NIS-S 1-2, FW-NIS-G 1-4, FW-NIS-G 6, FW-GRZ-S 1, FW-GRZ-G 2-3, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, FW-FIRE-G 8, FW-MM-G 1, DA-WSR-S 2, DA-WILD-S 1, DA-ZOO-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2</p>	<p>FW-WFP-DC 5, FW-WFP-O 3, FW-WFP-G 1-2, FW-WFP-G 6, FW-TFA-O 1-3, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1-4, WFP MANAGEMENT APPROACH 6, WFP MANAGEMENT APPROACH 11-12, VVMA MA 1-2, SAMA MA 1-7</p>

### Nokomis fritillary butterfly

Nokomis fritillary butterfly (*Speyeria nokomis nokomis*) inhabits streamside meadows and bogs within arid ponderosa pine, piñon-juniper woodland, and sagebrush ecosystems (Selby 2007). The presence of bog violet is a critical ecological component, as this is the primary larval food plant (Selby 2007). Microhabitat conditions for the bog violet is wet alkaline soils and shade, often under willows (Selby 2007). It is also important to have plenty of nectar sources such as thistles, horsemint (*Agastache spp.*), and Joe pye weed (*Eupatorium maculatum*) nearby (NatureServe 2018). This species distribution within the Carson National Forest is limited, as wetland habitat found in arid ecosystems are rare, small, and isolated (Cary and Holland 1992). This species is primarily associated Wetland Riparian vegetation community. Threats include loss of bog violet component, loss of nectar sources, and loss of microhabitat condition through invasive plant species encroachment, stand replacing fire, decreased ground water retention, and increased soil compaction by livestock grazing and recreational use.

**Table 73. Plan components (coarse and fine-filter) that address ecological condition and threats for Nokomis fritillary butterfly**

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Riparian areas Forest and Shrub Riparian	Seral state departure Catastrophic fire Invasive vegetative encroachment Disconnected floodplains Specific ecological features Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-VEG-PPF-DC 1, FW-VEG-PPF-DC 3-4, FW-VEG-PJO-DC 1, FW-VEG-PJO-DC 5, FW-VEG-PJO-DC 13, FW-WSW-DC 1-2, FW-WSW-DC 6, FW-WSW-RMZ-DC 1-5, FW-WSW-RMZ-DC 7-9, FW-WSW-RMZ-SNS-DC 1-3, FW-WSW-RMZ-SNS-DC 5-7, FW-WSW-RMZ-WR-DC 1-3, FW-WSW-RMZ-FSR-DC 1-3 FW-WSW-RMZ-FSR-DC 5-8, FW-WSW-RMZ-FSR-DC 8, FW-WSW-RMZ-FSR-DC 12, FW-WFP-DC 4-6, FW-WFP-DC 8-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-VEG-PPF-O 1-2, FW-SL-G 2, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-G 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-SNS-O 1, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-WR-S 3, FW-WFP-O 1, FW-WFP-O 5, FW-WFP-G 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-4, FW-GRZ-S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 16, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-SNS-DC 8-9, FW-WSW-RMZ-WR-DC 4-5, FW-WSW-RMZ-FSR-DC 9-10, FW-WSW-RMZ-FSR-G 1-2, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

## Masked shrew

Masked shrew (*Sorex cinereus*) hunts insects and other small mammals along banks of cold streams, in wet meadows, and under logs within spruce-fir and bristlecone pine forest (Frey and Yates 1996) throughout the Carson National Forest. Ecological condition is associated with moist sites with deep enough soil or duff to burrow (Whitaker 2005). Threats to this species include climate change, as it prefers wet areas in upper elevations that may be altered due to rising temperatures (BISON-M 2017l) include sedimentation caused by grazing, fuelwood gathering, wildfire, recreation, motorized travel, and changes in hydrology.

**Table 74. Plan components (coarse and fine-filter) that address ecological condition and threats for masked shrew**

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Bristlecone Pine Forest  Spruce-fir Forest  Riparian areas  Forest and Shrub Riparian	Seral state departure  Catastrophic fire  Invasive vegetative encroachment  Disconnected floodplains  Specific ecological features  Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-BP-DC 1, FW-VEG-BP-DC 4-5, FW-VEG-SFF-DC 1-2, FW-VEG-SFF-DC 7, FW-SL-DC 1-3, FW-WSW-DC 1-2, FW-WSW-DC 5-6, FW-WSW-RMZ-DC 1-9, FW-WSW-RMZ-STM-DC 1-2, FW-WSW-RMZ-STM-DC 4-5, FW-WSW-RMZ-STM-DC 8, FW-WSW-RMZ-SNS-DC 1-3, FW-WSW-RMZ-SNS-DC 5-7, FW-WSW-RMZ-WR-DC 1-3, FW-WSW-RMZ-FSR-DC 1-3, FW-WSW-RMZ-FSR-DC 5-8, FW-WSW-RMZ-FSR-DC 8, FW-WSW-RMZ-FSR-DC 12, FW-WFP-DC 4-6, FW-WFP-DC 8-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-FFP-DC 4, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-VEG-SFF-G 1, FW-VEG-SFF-G 5, FW-SL-G 1-2, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-G 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-STM-O 1-2, FW-WSW-RMZ-SNS-O 1, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-WR-2-3, FW-WSW-RMZ-FSR-G 3, FW-WFP-O 1, FW-WFP-O 5, FW-WFP-G 5, FW-NIS-O 1, FW-NIS-S 1-2, FW-NIS-G 1-5, FW-GRZ-S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-FFP-G 1-3, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-O 1-3, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 16, FW-VEG-DC 21, FW-VEG-G 1-3, FW-VEG-BP-DC 8, FW-VEG-SFF-DC 16, FW-WSW-DC 5, FW-WSW-RMZ-FSR-DC 11-12, FW-WSW-RMZ-FSR-G 1-2, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-GRZ-S 3, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

### Pale Townsend's big-eared bat

The Townsend's big-eared bat (*Corynorhinus townsendii pallescens*) has not been documented on the Carson National Forest since 1998. They hibernate and roost in caves and abandoned mine features, which are rare on the Carson National Forest. Ongoing activities known to impact habitats used by the bats include recreational caving or mine exploring, vandalism, renewed mining (Finch 1992, Kunz and Martin 1982, USFS 2013, WBWG 2005b), and potentially white-nose syndrome, a lethal fungal infection in some species of hibernating bats in the eastern and Midwestern U.S. (USDI Bureau of Land Management et al. 2010, Cryan 2014). Past activities, such as improper cave and mine closures, have led to a reduction in the number of available hibernacula for this species.

**Table 75. Plan components (coarse and fine-filter) that address ecological condition and threats for Pale Townsend's big-eared bat**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)</b>
Caves and Abandoned Mines	Catastrophic fire Unnatural disease spread Specific ecological features Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 19-20, FW-CAM-DC 2-4, FW-WFP-DC 9, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-RMZ-STM-O 1-2, FW-WSW-RMZ-SNS-O 1, FW-WFP-O 1, FW-REC-G 3, FW-TFA-G 5, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 17, FW-VEG-DC 21, FW-VEG-G 1-3, FW-CAM-DC 1, FW-CAM-G 1-3, FW-WFP-DC 1-3, FW-WFP-DC 7, FW-WFP-G 1-2, FW-WFP-G 7, FW-FIRE-G 3, FW-FIRE-G 7-8, CAM MANAGEMENT APPROACH 1-2, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

## Spotted bat

In New Mexico, spotted bat (*Euderma maculatum*) has been recorded in 20 locations throughout very diverse habitats up to 10,000 feet elevation (NatureServe, 2010, BISON-M, 2010, Gannon, Kendall, Campbell, DeCarvalho, & Burt, 1998 and Geluso, 2006) including on the Carson National Forest. This species is more dependent on roost availability and water than on vegetation types. The ideal roost sites for this species is cliffs, rocky outcrops, or caves that are near water (streams, pond, and tanks) and open areas for foraging of insects within mixed conifer and ponderosa pine vegetation communities. Ongoing activities known to impact ecological conditions used by the bats include recreational mine adit exploring, recreational rock climbing, vandalism, renewed mining (Finch 1992, Kunz and Martin 1982, USFS 2013, WBWG 2005b), and potentially white-nose syndrome, a lethal fungal infection in some species of hibernating bats in the eastern and Midwestern U.S. (USDI Bureau of Land Management et al. 2010, Cryan 2014). Past activities, such as improper mine closures, have led to a reduction in the number of available hibernacula for this species.

**Table 76. Plan Components (coarse and fine filter) that address ecological condition and threats for American Peregrine Falcon**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)</b>
Mixed-conifer with frequent fire  Mixed-conifer with Aspen  Ponderosa pine forest  Cliff and Rocky Features	Seral state departure  Catastrophic fire  Unnatural disease spread  Specific ecological features  Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-VEG-MCW-DC 1-3, FW-VEG-MCW-DC 12, FW-VEG-MCD-DC 1-2, FW-VEG-PPF-DC 1-2, FW-WSW-DC 1, FW-WSW-DC 5, FW-WSW-RMZ-DC 1-5, FW-CRF-DC 1-3, FW-WFP-DC 9, FW-FFP-DC 4, FW-FIRE-DC 1-5, FW-TFA-DC 4-5, FW-SU-DC 7, FW-MM-DC 1, FW-WILD-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 3, FW-VEG-MCD-O 1-2, FW-VEG-PPF-O 1-2, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WFP-O 1, FW-WFP-G 6, FW-FFP-S 2, FW-FFP-G 1-3, FW-REC-S 2, FW-REC-G 3-5, FW-TFA-O 1 FW-TFA-G 9, FW-SU-S 2, FW-SU-G 1, FW-SU-G 4-5, DA-WSR-S 1-2, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 17, FW-VEG-DC 21, FW-VEG-G 1-2, FW-VEG-PPF-DC 19, FW- FW-WSW-DC 5, FW-CRF-G 1-3, FW-CAM-G 1-3, CRF MANAGEMENT APPROACH 1-3, FW-WFP-DC 1-3, FW-WFP-G 7, FW-WFP-DC 7, FW-WFP-G 1-3, WFP MANAGEMENT APPROACH 1- 2, WFP MANAGEMENT APPROACH 7

## Water shrew

Water shrew (*Sorex palustris*) are strongly associated with riparian habitats in the vicinity of permanent streams above 8,000 feet in elevation (Conway 1952; Frey and Yates 1996; BISON M 2017m). This species typically utilizes areas with abundant cover, such as rocks, logs, or overhanging streambank vegetation (Conway 1952, NatureServe 2018) and will create burrows within these ecological conditions. High elevation forest riparian habitats on the Carson National Forest are limited (less than 3 percent of the forest). Threats from changes in ecological condition include reduction of in-stream flow, increased sedimentation levels, loss of riparian coarse woody debris, loss of overhanging banks, and loss of woody and herbaceous riparian vegetation (BISON M 2018).

**Table 77. Plan components (coarse and fine filter) that address ecological condition and threats for water shrew**

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Riparian areas	Seral state departure Catastrophic fire Invasive vegetation encroachment Disconnected floodplains Specific ecological features Ground disturbing activities Intrusive human activity	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-SL-DC 1-3, FW-WSW-DC 1-3, FW-WSW-DC 5, FW-WSW-DC 7, FW-WSW-RMZ-DC 1-9, FW-WSW-RMZ-STM-DC 1-3, FW-WSW-RMZ-STM-DC4-8, FW-WSW-RMZ-SNS-DC 1, FW-WSW-RMZ-SNS-DC 5-7, FW-WSW-RMZ-WR-DC 1-3, FW-WSW-RMZ-FSR-DC 1-6, FW-WSW-RMZ-FSR-DC 8, FW-WSW-RMZ-FSR-DC 12-13, FW-WFP-DC 4, FW-WFP-DC 6, FW-WFP-DC 9-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-SU-DC 7, FW-FIRE-DC 1-6, FW-MM-DC 1, FW-WILD-DC 1, DA-WHT-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-MCD-O 1-2, FW-VEG-PPF-O 1-2, FW-SL-G 1-2, FW-WSW-O 1, FW-WSW-G 1-2, FW-WSW-RMZ-O 1, FW-WSW-RMZ-G 2-4, FW-WSW-RMZ-STM-O 1-2, FW-WSW-RMZ-STM-S 1-2, FW-WSW-RMZ-STM-G 1-2, FW-WSW-RMZ-STM-G 4, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-SNS-G 1, FW-WSW-RMZ-WR-S 1-3, FW-WSW-RMZ-FSSR-G 1-2, FW-WFP-O 1, FW-WFP-O 5, FW-NIS-O 1, FW-NIS-S 1-2, FW-NIS-G 1-4, FW-NIS-G 6, FW-GRZ-S 1, FW-GRZ-G 2-3, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 3, FW-REC-G 5, FW-TFA-S 3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, FW-FIRE-G 8, FW-MM-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-STM-DC 11, FW-WSW-RMZ-FSR-DC 11-12, FW-WSW-RMZ-FSR-G 1-3, FW-WFP-DC 1-3, FW-WFP-DC 5, FW-WFP-O 3, FW-WFP-G 1-2, FW-WFP-G 6, FW-TFA-O 1-3, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1-4, WFP MANAGEMENT APPROACH 6, WFP MANAGEMENT APPROACH 11-12, VVMA MANAGEMENT APPROACH 1-2, SAMA MANAGEMENT APPROACH 1-7

## Alpine Larkspur

Alpine larkspur (*Delphinium alpestre*) are found within the rocky outcrops of the alpine tundra. (NMRPTC 2018). Within New Mexico, populations of alpine larkspur are restricted to the alpine tundra of the Carson National Forest, and therefore have limited distribution. The remote and relatively inaccessible habitats of this species provide it with a large degree of protection from land use impacts, however, this species can be targeted for weed control and seed collection (NMRPTC 2018).

**Table 78. Plan Components (coarse and fine-filter) that address ecological condition and threats for alpine larkspur**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)</b>
Alpine and Tundra  Cliffs and Rocky Feature	Seral state departure  Invasive vegetative encroachment  Specific ecological features  Limited or Specific Soil Conditions  Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19, FW-VEG-ALP-DC 1-3, FW-VEG-ALP-DC 8, FW-SL-DC 1-6, FW-CRF-DC 1, FW-CRF-DC 3, FW-WFP-DC 4-6, FW-WFP-DC 8-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3	FW-VEG-G 1-3, FW-SL-G 2, FW-WFP-O 1, FW-WFP-O 5, FW-WFP-G 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-4, FW-GRZ-S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 5, FW-TFA-S 1-3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9-10, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, FW-MM-G 1, DA-WILD-S 1, MA-VVMA-G 1-2,	FW-VEG-DC 14, FW-VEG-DC 17-19, FW-VEG-DC 21, FW-VEG-S 1, FW-VEG-ALP-DC 7, FW-VEG-ALP-G 1, FW-VEG-G 1-3, FW-CRF-G 1-4, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6, CRF MANAGEMENT APPROACH 1-3,

## Arizona Willow

Arizona willow (*Salix arizonica*) is only found in high elevation areas within open meadows and along streams (montane subalpine grassland and forest, shrub, and scrub riparian vegetation communities). Thirteen populations occupy approximately 50 acres in the Cabresto Creek, Sawmill Creek, and Bitter Creek headwaters, and Lagunitas Creek on the Questa, Tres Piedras, and Camino Real ranger districts of the Carson National Forest. Threats to Arizona willow include decrease in ground water retention, increase in soil compaction, invasive species encroachment, stand replacing fire, and livestock grazing which could impact growth and vigor of willow.

**Table 79. Plan Components (coarse and fine-filter) that address ecological condition and threats for Arizona willow**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)</b>
Montane and Subalpine Grassland  Riparian areas  Forest and Shrub Riparian	Seral state departure  Catastrophic fire  Invasive vegetative encroachment  Disconnected floodplains  Specific ecological features  Ground disturbance activities  Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-VEG-MSG-DC 1-6, FW-VEG-MSG-DC 8-11, FW-SL-DC 1-6, FW-WSW-DC 1-2, FW-WSW-DC 6, FW-WSW-RMZ-DC 1-5, FW-WSW-RMZ-DC 7-9, FW-WSW-RMZ-STM-DC 1-2, FW-WSW-RMZ-STM-DC 8-9, FW-WSW-RMZ-STM-DC 11, FW-WSW-RMZ-SNS-DC 1-3, FW-WSW-RMZ-SNS-DC 5-7, FW-WSW-RMZ-WR-DC 1-3, FW-WSW-RMZ-FSR-DC 1-3, FW-WSW-RMZ-FSR-DC 5-8, FW-WSW-RMZ-FSR-DC 8, FW-WFP-DC 4-6, FW-WFP-DC 8-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, FW-WILD-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-VEG-MSG-G, FW-SL-G 2, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-G 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-STM-O 1, FW-WSW-RMZ-STM-G 1, FW-WSW-RMZ-SNS-O 1, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-WR-S 3, FW-WFP-O 1, FW-WFP-O 5, FW-WFP-G 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-4, FW-GRZ-S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 5, FW-TFA-S 1-3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9-10, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, FW-MM-G 1, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 17-19, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-WR-DC 4, FW-WSW-RMZ-FSR-DC 8-9, FW-WSW-RMZ-FSR-DC 12, FW-WSW-RMZ-FSR-G 1-2, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

### Chaco Milkvetch, Chama Blazing Star, Pagosa Milkvetch, Small-headed Goldenweed, and Tufted Sand Verbena

Chaco milkvetch (*Astragalus micromerius*) and Tufted sand verbena (*Abronia bigelovii*) are restricted to Todilto gypsum or limy sandstone in piñon-juniper woodlands on the Canjilon Ranger District. Due to its dependence on sandstone that is blended with Todilto gypsum or limestone, populations of this plant are isolated on the Carson National Forest.

Chama blazing star (*Mentzelia conspicua*) is only found on the Carson National Forest in small and isolated populations on the Canjilon Ranger District. It is restricted to gray to red shales of Mancos and Chinle soil formations in the piñon-juniper woodland (NMRPTC 1999).

Pagosa milkvetch (*Astragalus missouriensis* var. *humistratus*) is found in one small and isolated population on the Jicarilla Ranger District. It is restricted to Mancos and Lewis soil formations within ponderosa pine forest and piñon-juniper woodland vegetation communities (Decker 2006).

Small-headed goldenweed (*Ericameria microcephala*) is restricted to granite rock crevices and outcrops within ponderosa pine forest (NMRPTC 1999) on the Tres Piedras Ranger District.

Threats for these plant species include loss of specific soil or rock formation from ground disturbing activities, direct harm to the plant itself, and invasive species encroachment.

**Table 80. Plan components (coarse and fine-filter) that address ecological condition and threats for Chaco milkvetch, Chama blazing star, Pagosa milkvetch, small-headed goldenweed, and tufted sand verbena**

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Ponderosa Pine Forest  Piñon-Juniper Woodlands  Cliffs and Rocky Feature	Seral state departure  Invasive vegetative encroachment  Specific ecological features  Limited or Specific Soil Conditions  Ground disturbing activities  Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-SL-DC 1-6, FW-VEG-PPF-DC 1-4, FW-VEG-PJO-DC 1, FW-VEG-PJO-DC 5-6, FW-CRF-DC 1, FW-CRF-DC 3, FW-WFP-DC 4-6, FW-WFP-DC 8-10, FW-NIS-DC 1FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-MM-DC 1, MA-RWMA-DC 1	FW-VEG-G 1-3, FW-SL-G 2, FW-VEG-PPF-O 1-2, FW-WFP-O 1, FW-WFP-O 5, FW-WFP-G 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-4, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 5, FW-TFA-S 1-3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9-10, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, FW-MM-G 1	FW-VEG-DC 14, FW-VEG-DC 17-19, FW-VEG-DC 21, FW-VEG-S 1, FW-VEG-G 1-3, FW-VEG-PPF-DC 19, FW-VEG-PJO-DC 14, FW-CRF-G 1-4, CRF MANAGEMENT APPROACH 1-3, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

## Ripley's Milkvetch

Ripley's milkvetch (*Astragalus ripleyi*) on the Carson National Forest is exclusively associated with volcanic substrates within ponderosa pine forest and piñon-juniper woodland vegetation communities on the Tres Piedras, Questa, and Camino Real ranger districts (Ladyman 2003). Currently, it has been identified at 44 locations in New Mexico, of which 10 are on the Carson National Forest (NHNM 2014). This is one of the few New Mexico milkvetches that is a desirable forage plant. It is relished by deer, elk, and all classes of livestock, without toxic effects common to other *Astragalus* species (NMRPTC 2018). This species is vulnerable to invasive species encroachment and direct harm to the plant itself.

**Table 81. Plan Components (coarse and fine-filter) that address ecological condition and threats for Ripley's milkvetch**

<b>Ecological Conditions</b>	<b>Issues and Threats</b>	<b>Desired Conditions (Coarse Filter)</b>	<b>Objectives, Standards, and Guidelines (Coarse Filter)</b>	<b>Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)</b>
Ponderosa Pine Forest  Piñon-Juniper Woodlands	Seral state departure  Invasive vegetative encroachment  Specific ecological features  Limited or Specific Soil Conditions  Ground disturbance activities  Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 20, FW-SL-DC 1-6, FW-VEG-PPF-DC 1-4, FW-VEG-PJO-DC 1, FW-VEG-PJO-DC 5-6, FW-WFP-DC 4-6, FW-WFP-DC 8-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-SL-G 2, FW-VEG-PPF-O 1-2, FW-WFP-O 1, FW-WFP-O 5, FW-WFP-G 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-4, FW-GRZ-S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 5, FW-TFA-S 1-3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9-10, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 17-19, FW-VEG-DC 21, FW-VEG-S 1, FW-VEG-G 1-3, FW-VEG-PPF-DC 19, FW-VEG-PJO-DC 14, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

## Robust Larkspur

Robust larkspur (*Delphinium robustum*) occurs in valley bottoms, riparian woodlands, subalpine meadows, and aspen groves in lower and upper montane coniferous forests of the Carson National Forest from 7,000 to 11,200 feet (spruce-fir forest and mixed conifer with aspen vegetation communities). Six occurrences have been reported in New Mexico, three of which were found on the Carson National Forest (SEINet 2014). This species is occasionally targeted for weed control, as some species of larkspur are poisonous to livestock. Additional threats include direct harm to the species itself.

**Table 82. Plan components (coarse and fine-filter) that address ecological condition and threats for robust larkspur**

Ecological Conditions	Issues and Threats	Desired Conditions (Coarse Filter)	Objectives, Standards, and Guidelines (Coarse Filter)	Desired Conditions, Objectives, Standards, and Guidelines, and Management Approaches (Fine Filter)
Spruce Fir Forest  Aspen  Mixed Conifer with Aspen  Riparian areas	Seral state departure  Invasive vegetative encroachment  Specific ecological features  Ground disturbance activities  Intrusive human activities	FW-VEG-DC 1-3, FW-VEG-DC 5, FW-VEG-DC 10-11, FW-VEG-DC 19-20, FW-VEG-SFF-DC 1, FW-VEG-SFF-DC 5-8, FW-VEG-ASP-DC 1, FW-VEG-MCW-DC 1, FW-VEG-MCW-DC 7-8, FW-VEG-MCW-DC 11-12, FW-VEG-MCW-DC 15, FW-SL-DC 1-6, FW-WSW-DC 1-2, FW-WSW-DC 6, FW-WSW-RMZ-DC 1-5, FW-WSW-RMZ-DC 7-9, FW-WSW-RMZ-STM-DC 1-2, FW-WSW-RMZ-STM-DC 8-9, FW-WSW-RMZ-STM-DC 11, FW-WSW-RMZ-SNS-DC 1-3, FW-WSW-RMZ-SNS-DC 5-7, FW-WSW-RMZ-WR-DC 1-3, FW-WSW-RMZ-FSR-DC 1-3, FW-WSW-RMZ-FSR-DC 5-8, FW-WSW-RMZ-FSR-DC 8, FW-WFP-DC 4-6, FW-WFP-DC 8-10, FW-NIS-DC 1, FW-GRZ-DC 3-6, FW-TFA-DC 4-5, FW-FIRE-DC 1-5, FW-WILD-DC 1, MA-RWMA-DC 1, MA-VVMA-DC 1-3, MA-SAMA-DC 1-2	FW-VEG-G 1-3, FW-VEG-SFF-G 1, FW-SL-G 2, FW-WSW-O 1, FW-WSW-RMZ-O 1, FW-WSW-G 1, FW-WSW-RMZ-G 2-3, FW-WSW-RMZ-STM-O 1, FW-WSW-RMZ-STM-G 1, FW-WSW-RMZ-SNS-O 1, FW-WSW-RMZ-SNS-S 1, FW-WSW-RMZ-WR-S 3, FW-WFP-O 1, FW-WFP-O 5, FW-WFP-G 5, FW-NIS-O 1, FW-NIS-S 1, FW-NIS-G 1-4, FW-GRZ-S 1, FW-GRZ-G 2-5, FW-FFP-S 2, FW-REC-G 1, FW-REC-G 5, FW-TFA-S 1-3, FW-TFA-G 1-2, FW-TFA-G 6, FW-TFA-G 9-10, FW-FIRE-G 2, FW-FIRE-G 4, FW-FIRE-G 6, DA-WSR-S 2, DA-WILD-S 1, MA-EWSR-S 1, MA-EWSR-G 1, MA-VVMA-G 1-2, MA-SAMA-S 1-2	FW-VEG-DC 14, FW-VEG-DC 17, FW-VEG-DC 21, FW-VEG-G 1-3, FW-WSW-DC 5, FW-WSW-RMZ-WR-DC 4, FW-WSW-RMZ-FSR-DC 8-9, FW-WSW-RMZ-FSR-DC 12, FW-WSW-RMZ-FSR-G 1-2, FW-WFP-DC 1-3, FW-WFP-G 1-2, FW-FIRE-G 3, FW-FIRE-G 7-8, WFP MANAGEMENT APPROACH 1, WFP MANAGEMENT APPROACH 2, WFP MANAGEMENT APPROACH 6

## Section 2. At-Risk Species Crosswalk – Issues and Threats

These crosswalks reference all plan components within the Carson National Forest Plan that address issues and threats for at-risk species (for an analysis of these issues and threats, please refer to chapter 3 of volume 1 of this DEIS). Issues have been identified as habitat that is out-of-reference and in need of restoration (coarse filter approaches) while threats have been identified as anthropomorphic (human-based) activities that are negatively impacting at-risk species. These are usually addressed through fine filter approaches and may be very species specific. Managing for at-risk species is often a combination of coarse and fine filter plan components.

### Issues

#### Seral State Departure

Over 84 percent of all at-risk species on the Carson National Forest are impacted by highly-departed seral state. Seral state is a complex issue that deals with the ecological succession of vegetation as it progresses towards a climax community. It looks at how vegetative systems age over time and what the average range of age classes of vegetation exist within the system. For example, a healthy and productive (in-reference condition) forest will consist of a mix of young, middle-aged, and old trees as well as the herbaceous understory. A complete description of vegetation types and their seral state composition is found in the Assessment (USDA Forest Service 2015). The variability in vegetative structure also contributes to other ecological conditions necessary for some species such as snag density (amount of standing dead trees) or the amount of coarse woody debris (amount of dead tree material on the ground). These components may be critical for the persistence of some species and are indirectly tied to seral state condition since seral state impacts the recruitment, retention, and size classes of these features. Departure from reference conditions can negatively impact the habitat associated with these ecosystems. For example, a spruce-fir forest that consists of 80 percent early successional trees (young trees) may lack the structure and snags provided by old and dying trees. This can negatively impact the wildlife species dependent upon the seral states within healthy spruce-fir forests.

Another issue caused by out-of-reference seral state is the potential for stand replacing fires. In both forested and non-forested ecosystems, fuel loads can build to levels that increase the potential for stand replacing fires. Besides devastating the vegetative conditions within and vegetation types, uncharacteristic fires can also potentially wipe out at-risk species that reside in those systems, especially if they are rare or endemic. The cause of seral state departure can usually be traced back to long-term man-made actions such as fire-suppression. Vegetative conditions, including how they naturally transition over time and with disturbances, are the foundation of most wildlife habitat. Therefore, vegetation that closely mirrors appropriate distributions of these natural vegetative transitional states, or seral states, makes better wildlife habitat than vegetation that is departed from the appropriate seral state distributions (as defined by historic or reference conditions). Some at-risk species depend upon in-reference seral state condition in one, or multiple, vegetation types for persistence on the forest.

Plan components related to seral state are listed in table 83.

**Table 83. Seral state plan components**

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-9	FW-VEG-MCW-DC 14-15	FW-WSW-O 1
FW-VEG-DC 11-12	FW-VEG-MCD-DC 1-5	FW-WSW-G 1
FW-VEG-DC 14-17	FW-VEG-MCD-DC 8-12	FW-WSW-RMZ-DC 1-4
FW-VEG-DC 20-21	FW-VEG-MCD-DC 16-20	FW-WSW-RMZ-O 1
FW-VEG-G 1-2	FW-VEG-MCD-O 1-2	FW-WSW-RMZ-WR-DC 1-3
FW-VEG-G 3-4	FW-VEG-PPF-DC 1-6	FW-WSW-RMZ-FSR-DC 1-3
FW-VEG-ALP-DC 1-5	FW-VEG-PPF-DC 8-10	FW-WSW-RMZ-FSR-DC 5-7
FW-VEG-MSG-DC 1-4	FW-VEG-PPF-DC 12	FW-WSW-RMZ-FSR-G 3
FW-VEG-MSG-DC 6-9	FW-VEG-PPF-DC 15-18	FW-WFP-DC 1-6
FW-VEG-MSG-DC 11-14	FW-VEG-PPF-O 1-2	FW-WFP-DC 8-10
FW-VEG-BP-DC 1	FW-VEG-PPF-G 1-2	FW-WFP-O 1
FW-VEG-BP-DC 3-7	FW-VEG-PJO-DC 1-10	FW-WFP-G 1-2
FW-VEG-BP-G 1	FW-VEG-PJO-G 1-3	FW-NIS-DC 1
FW-VEG-SFF-DC 1-10	FW-VEG-PJS-DC 1-10	FW-NIS-O 1
FW-VEG-SFF-DC 12	FW-VEG-PJS-DC 13-15	FW-GRZ-DC 4-6
FW-VEG-SFF-DC 15	FW-VEG-PJS-G 1	FW-GRZ-S 1
FW-VEG-ASP-DC 1-8	FW-VEG-SAGE-DC 1-9	FW-FFP-S 1-2
FW-VEG-MCW-DC 1-5	FW-SL-DC 3	FW-FIRE-DC 1-2
FW-VEG-MCW-DC 7-13	FW-WSW-DC 2	FW-MM-DC 1

## Snag Density Departure

When a tree dies but remains standing it becomes a snag and provides habitat for an array of animals, especially birds. Ecologically, a dead tree is as important to the forest ecosystem as a live one and provides several key ecological functions that influence the ecosystem. Snags provide homes for birds and foraging opportunities for insectivorous animals. If snags are not in adequate supply or below desired conditions identified as snags per acre, it may result in lack of nesting locations or foraging areas for insectivorous birds or mammals. Conversely, large-scale fire often results in too many snags per acre and not enough live trees. Snag densities in reference condition should provide optimum habitat for at-risk species, therefore, departed snag densities may result in significant negative impacts to at-risk species. Currently, 3 percent of at-risk species are impacted by departed snag densities on the forest, these occur in three terrestrial forested vegetation types: piñon-juniper woodland (PJW), piñon-juniper sagebrush (PJS), and ponderosa pine forest (PPF). Plan components related to snag density departure are listed in table 84.

**Table 84. Snag density departure**

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-5	FW-VEG-MCD-DC 11	FW-VEG-PJS-G 4
FW-VEG-DC 20-21	FW-VEG-MCD-O 1-2	FW-WSW-RMZ-O 1
FW-VEG-G 1-4	FW-VEG-PPF-DC 1	FW-WSW-RMZ-FSR-DC 1-3
FW-VEG-BP-DC 1	FW-VEG-PPF-DC 5-6	FW-WSW-RMZ-FSR-G 2
FW-VEG-SFF-DC 1	FW-VEG-PPF-DC 10	FW-WFP-DC 1-6
FW-VEG-SFF-DC 3-4	FW-VEG-PPF-O 1-2	FW-WFP-DC 8-10
FW-VEG-ASP-DC 4	FW-VEG-PPF-G 1-2	FW-WFP-O 1

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-ASP-G 1	FW-VEG-PJO-DC 1	FW-WFP-G 1-2
FW-VEG-MCW-DC 1	FW-VEG-PJO-DC 7-8	FW-FFP-DC 4
FW-VEG-MCW-DC 4-5	FW-VEG-PJO-G 1	FW-FFP-S 1-2
FW-VEG-MCD-DC 1	FW-VEG-PJS-DC 1	FW-FFP-G 1-2
FW-VEG-MCD-DC 4-5	FW-VEG-PJS-DC 7-9	FW-FIRE-DC 1-2

### Coarse Woody Debris Departure

When a large tree falls it becomes coarse woody debris and provides habitat for small animals and insects. When these logs rot they store water and provide nutrients for the continued growth of the forest. Dead wood rotting on the forest floor eventually gets incorporated into the soil. This deteriorating wood feeds many insects and bacteria that provide nitrogen to feed the trees and other plants in the forest. Coarse woody debris is not only limited to upland habitats, it has significant impact on riparian areas as well and many aquatic species depend on downed woody material. Coarse woody debris not only provides foraging and escape cover for fish but it contributes to the creation of optimum aquatic habitat by slowing down water and contributing to pool development. Out of reference conditions of coarse woody debris may result in significant negative impacts to at-risk species. If coarse woody debris is not in adequate supply or below desired conditions identified as tons per acre (coarse woody debris load), it may result in lack of prey items for carnivorous birds or mammals. On the other hand, if coarse woody debris is in excess or above desired conditions it may create unfavorable soil conditions, especially for at-risk plant species by prohibiting growth or germination or resulting in more intense fires that negatively impact soil conditions. This is also a key factor in proper functioning aquatic habitats. Thus, coarse woody debris loads in reference condition should provide optimum habitat for terrestrial and aquatic animal species as well as soil conditions for plant species. Currently, 13 percent of at-risk species may be impacted by improper coarse woody debris loads on the forest, these occur in three terrestrial forested vegetation types: ponderosa pine forest (PPF), mixed conifer with frequent fire (MCD), and piñon-juniper sagebrush (PJS). Five species also utilize riparian areas (riparian management zones) where coarse woody debris is a key component not only for creating habitat but for maintaining stream function as well by trapping sediment and influencing channel formation.

The cause of departed coarse woody debris loads can usually be traced back to long-term human-caused actions such as fire suppression resulting in excess coarse woody debris in many of the forested vegetation types. Riparian areas, on the other hand, tend to lack enough coarse woody debris. The popularity of riparian areas for people, cattle, and wildlife often results in the suppression of woody recruitment because of increased trampling or grazing. In-reference coarse woody debris loads in both upland and riparian areas would provide the ecological conditions required for some at-risk species.

**Table 85. Coarse woody debris plan components**

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-3	FW-VEG-MCD-O 1-2	FW-WSW-RMZ-STM-O 1
FW-VEG-DC 5	FW-VEG-PPF-DC 1	FW-WSW-RMZ-STM-G 2
FW-VEG-DC 20-21	FW-VEG-PPF-DC 6	FW-WSW-RMZ-FSR-DC 1-3
FW-VEG-G 1-3	FW-VEG-PPF-DC 10	FW-WSW-RMZ-FSR-DC 6
FW-VEG-BP-DC 1	FW-VEG-PPF-O 1-2	FW-WSW-RMZ-FSR-G 2
FW-VEG-SFF-DC 1	FW-VEG-PJO-DC 1	FW-WFP-DC 1-6

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-SFF-DC 4	FW-VEG-PJO-DC 8	FW-WFP-DC 8-10
FW-VEG-ASP-DC 4	FW-VEG-PJO-G 1	FW-WFP-O 1
FW-VEG-MCW-DC 1	FW-VEG-PJS-DC 1	FW-WFP-G 1-2
FW-VEG-MCW-DC 5	FW-VEG-PJS-DC 8-9	FW-FFP-DC 4
FW-VEG-MCD-DC 1	FW-VEG-PJS-G 4	FW-FFP-S 1-2
FW-VEG-MCD-DC 5	FW-WSW-RMZ-O 1	FW-FFP-G 1-2
FW-VEG-MCD-DC 11	FW-WSW-RMZ-STM-DC 9-10	FW-FIRE-DC 1-2

## Risk of Catastrophic Fire

Fire plays a critical role in maintaining the health of an ecosystem. Many vegetation types within the Carson National Forest are classified as frequent-fire systems and depend on certain fire-return intervals to maintain reference conditions for numerous vegetative characteristics (examples are seral state, coarse woody debris, etc.). Long-term, historic fire suppression policies on the forest has resulted in an excess of fuel in many frequent fire systems (see vegetation analysis). This excess fuel load often creates conditions for uncharacteristic fire which is usually defined as fire that burns at higher-intensity or longer duration than what would typically occur under reference conditions.

Uncharacteristic fire often creates unfavorable forest conditions for at-risk species. It also can potentially wipe out isolated or small populations of at-risk species. Currently, 59 percent of at-risk species may be impacted by uncharacteristic fire but are impacted in different ways. Table 86 lists catastrophic fire plan components.

**Table 86. Catastrophic fire plan components**

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-3	FW-VEG-MCD-DC 1	FW-WSW-DC 1-2
FW-VEG-DC 5	FW-VEG-MCD-DC 3	FW-WSW-RMZ-DC 1
FW-VEG-DC 15-16	FW-VEG-MCD-DC 7	FW-WSW-RMZ-DC 7
FW-VEG-DC 20-21	FW-VEG-MCD-DC 20	FW-WSW-RMZ-O 1
FW-VEG-G 1-3	FW-VEG-MCD-O 1-2	FW-WSW-RMZ-WR-DC 1
FW-VEG-G 5	FW-VEG-PPF-DC 1-4	FW-WSW-RMZ-FSR-DC 1-3
FW-VEG-MSG-DC 1	FW-VEG-PPF-DC 18	FW-WSW-RMZ-FSR-DC 6
FW-VEG-MSG-DC 6	FW-VEG-PPF-O 1-2	FW-WFP-DC 1-4
FW-VEG-BP-DC 1	FW-VEG-PJO-DC 1	FW-WFP-O 1
FW-VEG-BP-DC 5	FW-VEG-PJO-DC 6	FW-WFP-G 1-2
FW-VEG-SFF-DC 1	FW-VEG-PJO-DC 13	FW-GRZ-DC 3-4
FW-VEG-SFF-DC 7	FW-VEG-PJS-DC 1	FW-FIRE-DC 1-6
FW-VEG-ASP-DC 1-2	FW-VEG-PJS-DC 6	FW-FIRE-S 1-6
FW-VEG-MCW-DC 1	FW-VEG-PJS-DC 15	FW-FIRE-G 1
FW-VEG-MCW-DC 3	FW-VEG-SAGE-DC 1	FW-FFP-DC 4
FW-VEG-MCW-DC 12	FW-VEG-SAGE-DC 8	MA-DEVRES-DC 2

## Invasive Vegetation Encroachment

When non-native plant species appear on the landscape native species must compete for available resources. A naturally aggressive plant may be especially invasive when it is introduced to a new habitat. Increased resource availability and altered disturbance regimes associated with human activities often differentially increase the performance of invaders over that of natives, this places undue stressors on native populations, especially at-risk plant species. Invasive vegetative encroachment can also impact animal species as well. Small mammals and even fish are dependent upon certain vegetation types and can be impacted if invasive plants alter the composition of their native habitats.

Currently, 56 percent of at-risk species may be impacted by invasive vegetation encroachment on the forest, these occur in all vegetation types including riparian areas. Plan components related to invasive vegetation encroachment are in table 87.

**Table 87. Invasive vegetation encroachment plan components**

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-3	FW-VEG-PPF-O 1-2	FW-WFP-DC 8
FW-VEG-DC 5	FW-VEG-PJO-DC 1	FW-WFP-O 1
FW-VEG-DC 17	FW-VEG-PJO-DC 5	FW-WFP-G 1-2
FW-VEG-DC 20-21	FW-VEG-PJS-DC 1	FW-WFP-G 5
FW-VEG-G 1-3	FW-VEG-PJS-DC 3	FW-NIS-DC 1
FW-VEG-ALP-DC 1-2	FW-VEG-PJS-DC 5	FW-NIS-O 1
FW-VEG-MSG-DC 1-3	FW-VEG-SAGE-DC 1-2	FW-NIS-S 1-2
FW-VEG-MSG-DC 8	FW-VEG-SAGE-DC 4	FW-NIS-G 1-7
FW-VEG-BP-DC 1	FW-WSW-DC 1-2	FW-GRZ-DC 5-6
FW-VEG-BP-DC 4	FW-WSW-O 1	FW-TFA-O 1
FW-VEG-SFF-DC 1	FW-WSW-G 1	FW-TFA-S 1
FW-VEG-ASP-DC 1	FW-WSW-RMZ-DC 1-3	FW-FIRE-G 3
FW-VEG-ASP-DC 7	FW-WSW-RMZ-DC 9	FW-FIRE-G 8
FW-VEG-MCW-DC 1-2	FW-WSW-RMZ-STM-S 1	FW-MM-G 1
FW-VEG-MCW-DC 7	FW-WSW-RMZ-WB-DC 1-2	DA-WILD-DC 1
FW-VEG-MCD-DC 1-2	FW-WSW-RMZ-WB-S 1	DA-WILD-S 4
FW-VEG-MCD-DC 7	FW-WSW-RMZ-SNS-DC 1-2	DA-IRA-DC 1
FW-VEG-MCD-DC 17	FW-WSW-RMZ-SNS-S 1	MA-RWMA-DC 2
FW-VEG-MCD-O 1-2	FW-WSW-RMZ-WR-DC 3	MA-GMMA-S 2
FW-VEG-PPF-DC 1-3	FW-WSW-RMZ-FSR-DC 1-3	MA-VVMA-DC 1
FW-VEG-PPF-DC 17	FW-WFP-DC 1-4	MA-SAMA-DC 1

## Disconnected Floodplains

Floodplains are a key component in riparian areas that are adjacent to river and stream systems. They are generally characterized by gradual slopes which results in the water spreading out over large areas (floodplains), thus, dispersing its energy minimizing its erosive nature. The conditions created by these events have resulted in vegetative communities specifically designed for wet-soil conditions. Due to changing vegetative conditions in riparian areas from excessive human uses (e.g. recreation and grazing) native vegetation is often diminished causing more severe erosion problems during high water events. This oftentimes causes the stream channel to downcut and directs more water through the channel resulting in even greater erosion. This results in streams and rivers with deep incised channels and steep banks where water cannot escape and disconnects the floodplains from the existing stream. This often causes impacts to terrestrial species dependent upon wet soil conditions and vegetation, as well as aquatic species within the stream and river systems. Currently, 34 percent of at-risk species may be impacted by disconnected floodplains on the forest, these occur in all vegetation types with riparian areas. Plan components related to disconnected floodplains can be found in table 88.

**Table 88. Disconnected floodplains plan components**

Plan Component Code	Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-3	FW-SL-G 1-3	FW-WFP-DC 1-6	FW-FIRE-G 7-8
FW-VEG-DC 5-9	FW-WSW-DC 1-3	FW-WFP-DC 8-10	FW-MM-DC 1
FW-VEG-DC 14	FW-WSW-DC 7	FW-WFP-O 1	FW-MM-S 1-2
FW-VEG-DC 20	FW-WSW-O 1	FW-WFP-O 5	FW-MM-G 1-2
FW-VEG-G 1-3	FW-WSW-G 1-4	FW-WFP-G 1-2	DA-WILD-DC 1-3
FW-VEG-ALP-DC 6	FW-WSW-RMZ-DC 1-9	FW-WFP-G 5-6	DA-WILD-S 4
FW-VEG-MSG-DC 1-5	FW-WSW-RMZ-O 1	FW-NIS-DC 1	DA-WSR-DC 1
FW-VEG-MSG-DC 9	FW-WSW-RMZ-G 1-4	FW-NIS-O 1	DA-WSR-S 1-3
FW-VEG-SFF-DC 1-2	FW-WSW-RMZ-STM-DC 1-2	FW-GRZ-DC 4-6	DA-IRA-DC 1
FW-VEG-SFF-G 1	FW-WSW-RMZ-STM-DC 4-11	FW-GRZ-S 1	DA-IRA-S 1-2
FW-VEG-MCW-DC 1-2	FW-WSW-RMZ-STM-O 1-2	FW-GRZ-G 2-5	DA-IRA-G 1-2
FW-VEG-MCD-DC 1-2	FW-WSW-RMZ-STM-S 1	FW-FPP-DC 1	MA-RWMA-DC 1-2
FW-VEG-MCD-O 1-2	FW-WSW-RMZ-STM-G 1-4	FW-FPP-S 1-2	MA-EWSR-DC 1-3
FW-VEG-PPF-DC 1-3	FW-WSW-RMZ-WB-DC 1-6	FW-FPP-G 1-3	MA-EWSR-S 1-8
FW-VEG-PPF-O 1-2	FW-WSW-RMZ-WB-S 1	FW-REC-S 1-2	MA-EWSR-G 1
FW-VEG-PJO-DC 1	FW-WSW-RMZ-SNS-DC 1-7	FW-REC-G 1	MA-GMMA-DC 3
FW-VEG-PJO-DC 5	FW-WSW-RMZ-SNS-O 1	FW-REC-G 5	MA-GMMA-S 1-3
FW-VEG-PJO-G 3	FW-WSW-RMZ-SNS-S 1	FW-TFA-DC 4-5	MA-JICMA-DC 1-2
FW-VEG-PJS-DC 1	FW-WSW-RMZ-SNS-G 1	FW-TFA-O 1-3	MA-JICMA-S 3-11
FW-VEG-PJS-DC 3	FW-WSW-RMZ-WR-DC 1-3	FW-TFA-S 1	MA-JICMA-G 1-2
FW-VEG-PJS-DC 5	FW-WSW-RMZ-WR-S 1-3	FW-TFA-G 1-4	MA-JICAMA-G 5
FW-VEG-SAGE-DC 1-2	FW-WSW-RMZ-FSR-DC 1-3	FW-TFA-G 9	MA-VVMA-DC 1
FW-VEG-SAGE-DC 4	FW-WSW-RMZ-FSR-DC 5-8	FW-FIRE-DC 1-3	MA-VVMA-G 1-2
FW-VEG-SAGE-DC 9	FW-WSW-RMZ-FSR-DC 12-13	FW-FIRE-S 1-7	MA-SAMA-DC 1
FW-SL-DC 1-3	FW-WSW-RMZ-FSR-G 1-3	FW-FIRE-G 1-4	MA-SAMA-S 1-3

## Limited or Specific Soil Conditions

Soils are complex and dynamic system that consists of a mineral component, organic matter, air, water, and various soil organisms resulting from interaction between parent material, climate, topography, and organisms throughout time and space. Soils store water, supply nutrients for plants, and provide a medium for plant growth. Soils also provide habitat for a diverse number of invertebrates and belowground organisms. Due to their slow rate of formation, soils are essentially a non-renewable resource.

Unfavorable soil conditions often decrease viability of at-risk species dependent upon specific soil type or condition. Most at-risk species reliant upon soil conditions are plants, however, some invertebrates also have an affinity for certain soil types.

Soil condition is based on three soil functions: (1) the ability of the soil to resist erosion, (2) the ability of the soil to infiltrate water, and (3) the ability of the soil to recycle nutrients. The loss of soil productivity through a reduction in soil function is due to a lack of effective vegetative ground cover and organic matter. This has resulted in unstable soils with reduced nutrient cycling. Soils in reference condition (satisfactory rating) provide the necessary ecological conditions for species dependent upon them. Soils that are out of reference are classified as impaired, unsatisfactory, or unsuited depending upon the degree in which they are impacted. Currently, 19 percent of at-risk species may be impacted by impaired, unsatisfactory, or unsuited soil conditions, or may need very specific soil type to grow on the forest. Limited or specific soil conditions plan components are found in table 89.

**Table 89. Limited or specific soil conditions plan components**

Plan Component Code	Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-3	FW-VEG-PPF-DC 1-3	FW-WSW-RMZ-WR-DC 1-4	FW-TFA-O 1
FW-VEG-DC 5	FW-VEG-PPF-DC 19	FW-WSW-RMZ-FSR-DC 1-3	FW-TFA-S 1
FW-VEG-DC 9	FW-VEG-PPF-O 1-2	FW-WSW-RMZ-FSR-DC 9	FW-TFA-G 1-4
FW-VEG-DC 14	FW-VEG-PJO-DC 1	FW-WSW-RMZ-FSR-DC 11	FW-SU-S 1-2
FW-VEG-DC 18-20	FW-VEG-PJO-DC 4-5	FW-CRF-DC 3	FW-SU-G 1-2
FW-VEG-G 1-3	FW-VEG-PJO-DC 14	FW-WFP-DC 1-3	FW-FIRE-DC 1-3
FW-VEG-MSG-DC 1-4	FW-VEG-PJS-DC 1	FW-WFP-DC 10	FW-FIRE-G 1
FW-VEG-MSG-DC 7	FW-VEG-PJS-DC 4-5	FW-WFP-O 1	FW-FIRE-G 7-8
FW-VEG-BP-DC 1	FW-VEG-PJS-DC 16	FW-WFP-O 4	FW-MM-DC 1
FW-VEG-BP-DC 8	FW-VEG-SAGE-DC 1-2	FW-WFP-G 1-2	FW-MM-G 1-2
FW-VEG-SFF-DC 1	FW-VEG-SAGE-DC 4-5	FW-WFP-G 5	DA-WILD-DC 1
FW-VEG-SFF-DC 16	FW-VEG-SAGE-DC 9	FW-NIS-DC 1	DA-WILD-S 4
FW-VEG-SFF-G 1	FW-SL-DC 1-7	FW-NIS-O 1	DA-IRA-DC 1
FW-VEG-ASP-DC 1	FW-SL-G 1-3	FW-NIS-S 1-2	MA-RWMA-DC 1
FW-VEG-ASP-DC 9	FW-WSW-DC 1-3	FW-NIS-G 1-7	MA-JICMA-DC 1
FW-VEG-MCW-DC 1-2	FW-WSW-O 1	FW-GRZ-DC 4-6	MA-JICMA-S 3-11
FW-VEG-MCW-DC 17	FW-WSW-G 1	FW-FFP-S 1	MA-JICMA-G 1-2
FW-VEG-MCD-DC 1-2	FW-WSW-RMZ-DC 1-3	FW-REC-S 1-2	MA-GMMA-DC 3
FW-VEG-MCD-DC 21	FW-WSW-RMZ-DC 9	FW-REC-G 1	MA-GMMA-S 2-3
FW-VEG-MCD-O 1-2	FW-WSW-RMZ-O 1	FW-REC-G 5	MA-VVMA-DC 1
FW-CAM-DC 1	FW-CRF-DC 1	FW-TFA-DC 4-5	MA-SAMA-DC 1

## Specific Ecological Features or Conditions

Specific ecological features sometimes limit the distribution and viability of at-risk species, especially if a species requires certain geophysical features (e.g., rock formations). For example, some bird species require specific rock or cliff formations for nesting, some plants require certain soil characteristics from specific geologic formations, and some fish and amphibians require specific water conditions (e.g. temperature, flow, etc.). Currently, 69 percent of at-risk species require specific ecological conditions that are not otherwise addressed by general habitat conditions related to vegetation. Specific ecological features plan components are found in table 90.

**Table 90. Specific ecological features plan components**

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 5	FW-SL-DC 7	FW-GRZ-DC 4-6
FW-VEG-DC 14	FW-SL-G 1-3	FW-GRZ-S 1-4
FW-VEG-DC 18-20	FW-WSW-DC 1-2	FW-GRZ-G 2-5
FW-VEG-S 1	FW-WSW-DC 4-5	FW-GRZ-G 8
FW-VEG-G 1-3	FW-WSW-O 1	FW-FFP-DC 1
FW-VEG-ALP-DC 6-7	FW-WSW-G 1	FW-FFP-S 1
FW-VEG-ALP-G 1-2	FW-WSW-RMZ-DC 1-3	FW-REC-G 3
FW-VEG-MSG-DC 1	FW-WSW-RMZ-O 1	FW-REC-G 5
FW-VEG-MSG-DC 10	FW-WSW-RMZ-STM-DC 1-3	FW-TFA-DC 5
FW-VEG-MSG-DC 12	FW-WSW-RMZ-STM-DC 6-11	FW-TFA-O 1
FW-VEG-MSG-DC 10	FW-WSW-RMZ-STM-O 1-2	FW-TFA-S 1-3
FW-VEG-BP-DC 1	FW-WSW-RMZ-STM-G 1-4	FW-TFA-G 1-10
FW-VEG-BP-DC 8	FW-WSW-RMZ-WB-DC 1-3	FW-FAC-G 2
FW-VEG-SFF-DC 1	FW-WSW-RMZ-SNS-DC 1-3	FW-SU-S 1-2
FW-VEG-SFF-DC 16	FW-WSW-RMZ-SNS-DC 8-9	FW-SU-G 1-6
FW-VEG-SFF-G 2-5	FW-WSW-RMZ-SNS-O 1	FW-FIRE-DC 1-3
FW-VEG-ASP-DC 1	FW-WSW-RMZ-WR-DC 1-4	FW-FIRE-S 6-7
FW-VEG-ASP-DC 9	FW-WSW-RMZ-FSR-DC 1-3	FW-FIRE-G 1-4
FW-VEG-ASP-G 1-4	FW-WSW-RMZ-FSR-DC 9	FW-FIRE-G 7-8
FW-VEG-MCW-DC 1-2	FW-WSW-RMZ-FSR-DC 11	FW-MM-DC 1
FW-VEG-MCW-DC 17	FW-WSW-RMZ-WR-DC 1	FW-MM-G 1-2
FW-VEG-MCW-G 2-6	FW-WSW-RMZ-WR-DC 4-5	DA-WILD-DC 1
FW-VEG-MCD-DC 1-2	FW-WSW-RMZ-FSR-DC 1-3	DA-WILD-S 4
FW-VEG-MCD-DC 21	FW-WSW-RMZ-FSR-DC 8-13	DA-IRA-DC 1
FW-VEG-MCD-G 3-6	FW-WSW-RMZ-FSR-G 3	DA-WHT-DC 1
FW-VEG-PPF-DC 1-2	FW-CAM-DC 1-4	DA-ZOO-DC 1-2
FW-VEG-PPF-DC 19	FW-CAM-G 1-3	DA-ZOO-S 1
FW-VEG-PPF-G 1-2	FW-CRF-DC 1-3	DA-BOT-DC 1-2
FW-VEG-PPF-G 5-8	FW-CRF-G 1-4	DA-BOT-G 1-2
FW-VEG-PJO-DC 1	FW-WFP-DC 1-3	MA-RWMA-DC 1
FW-VEG-PJO-G 1-2	FW-WFP-DC 10-11	MA-JICMA-DC 1
FW-VEG-PJO-DC 14	FW-WFP-O 1-3	MA-JICMA-S 3-11
FW-VEG-PJS-DC 1	FW-WFP-G 1-8	MA-JICMA-G 1-2

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-PJS-DC 16	FW-WFP-G 5	MA-GMMA-DC 3
FW-VEG-PJS-G 3-4	FW-NIS-DC 1	MA-GMMA-S 2-3
FW-VEG-SAGE-DC 1-2	FW-NIS-O 1	MA-VVMA-DC 1
FW-VEG-SAGE-DC 9	FW-NIS-S 1-2	MA-SAMA-DC 1

## Threats

### Invasive Predation (Aquatic):

Negative impacts to at-risk species may occur when nonnative invasive species are introduced, intentionally or unintentionally, into aquatic systems where at-risk species exist and competition and prey behavior results in population declines of the native populations. Non-native invasive species on the Carson National Forest include but are not limited to American bullfrogs, white sucker, German brown trout and rainbow trout. It is well known that rainbow and German brown trout often out-compete native Rio Grande cutthroat trout in areas where they were introduced but there is also the risk of predation on the at-risk Rio Grande sucker and chub. These non-native fish, in particular the German brown and rainbow trout, were introduced in waters of the Carson National Forest for socioeconomic benefit. Similarly, non-native American bullfrog were known to out-compete Northern leopard frogs and Western boreal toad. These are just examples of the types of negative consequences associated with invasive species that were introduced into aquatic systems. Invasive predation plan components are listed in table 91.

**Table 91. Invasive predation plan components**

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-3	FW-WSW-RMZ-STM-O 1	FW-NIS-DC 1
FW-VEG-DC 5	FW-WSW-RMZ-STM-S 1	FW-NIS-O 1
FW-VEG-DC 11	FW-WSW-RMZ-WB-DC 1-2	FW-NIS-S 1-2
FW-VEG-DC 14	FW-WSW-RMZ-WB-S 1	FW-NIS-G 1-7
FW-VEG-DC 20	FW-WSW-RMZ-SNS-DC 1-3	FW-GRZ-DC 4-6
FW-VEG-G 1-3	FW-WSW-RMZ-SNS-S 1	FW-FIRE-G 2-3
FW-VEG-MSG-DC 10	FW-WSW-RMZ-WR-DC 1	FW-FIRE-G 8
FW-SL-DC 5	FW-WSW-RMZ-WR-DC 3	DA-WILD-DC 1
FW-WSW-DC 4	FW-WSW-RMZ-FSR-DC 1-3	DA-WILD-S 4
FW-WSW-O 1	FW-WFP-DC 1-3	DA-IRA-DC 1
FW-WSW-G 1	FW-WFP-DC 5-6	MA-RWMA-DC 2
FW-WSW-RMZ-DC 1-3	FW-WFP-O 1	MA-RWMA-S 8
FW-WSW-RMZ-DC 9	FW-WFP-O 3	MA-VVMA-DC 1
FW-WSW-RMZ-O 1	FW-WFP-G 1-2	MA-VVMA-DC 3
FW-WSW-RMZ-STM-DC 1-3	FW-WFP-G 5	MA-SAMA-DC 1

### Ground and Soil Disturbance (Roads and Trails):

Ground or soil disturbance can impact at-risk species in a multitude of ways. Soil compaction can crush plant species or alter soil characteristic necessary for at-risk plants, thus inhibiting their potential for spread. Invertebrates and amphibians can also be impacted by this issue when soil characteristics are

altered or soil is compacted. Compaction mostly occurs when roads or trails are created, especially non-system roads or trails that may enter into areas where at-risk species exist. Other activities that increase ground and soil disturbance may include log landings for Forestry activities as well as recreational and range improvements (e.g. campgrounds, picnic areas, mineral and feed sites for livestock). Since some at-risk populations may be isolated and small, even the smallest of footprints may impact their viability if it occurs in a highly sensitive area.

Another means by which ground and soil disturbance can impact at-risk species is through erosion and subsequent siltation of waterways. When soil is disturbed the likelihood of erosion increases, especially if there is uncharacteristic weather events such as high wind or excessive rains. If ground disturbance occurs near a waterway, this can ultimately lead to excessive siltation when the exposed soils are carried into the water. This increased siltation reduces the amount of available oxygen and may impair the ability of aquatic species to forage, ultimately leading to direct mortality.

**Table 92. Ground and soil disturbance plan components**

Plan Component Code	Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1-3	FW-SL-DC 1	FW-NIS-O 1	DA-IRA-DC 1
FW-VEG-DC 5	FW-SL-G 1-2	FW-NIS-G 5-6	MA-RWMA-DC 2
FW-VEG-DC 14	FW-WSW-DC 1-3	FW-GRZ-DC 4-6	MA-EWSR-S 5
FW-VEG-DC 20	FW-WSW-O 1	FW-GRZ-S 1	MA-EWSR-G 1
FW-VEG-G 1-3	FW-WSW-G 1-4	FW-GRZ-G 2-5	MA-JICMA-DC 1-2
FW-VEG-ALP-DC 7	FW-WSW-RMZ-G 2-3	FW-FFP-S 2	MA-JICMA-S 7-8
FW-VEG-ALP-G 1	FW-WSW-RMZ-STM-DC 4-5	FW-FFP-G 1-3	MA-JICMA-S 10-11
FW-VEG-MSG-DC 3	FW-WSW-RMZ-STM-DC 11	FW-REC-S 1-2	MA-JICMA-G 4
FW-VEG-MSG-DC 5	FW-WSW-RMZ-STM-G 4	FW-REC-G 1	MA-GMMA-DC 3
FW-VEG-MSG-DC 10	FW-WSW-RMZ-WB-DC 6	FW-TFA-DC 4-5	MA-VVMA-DC 1-2
FW-VEG-MSG-G 1	FW-CAM-DC 2-3	FW-TFA-S 1-3	MA-VVMA-S 3-20
FW-VEG-BP-DC 3	FW-CAM-G 3	FW-TFA-G 6	MA-VVMA-G 2
FW-VEG-SFF-G 1	FW-CRF-G 1	FW-SU-G 1-3	MA-SAMA-DC 1-2
FW-VEG-PJO-DC 4-5	FW-WFP-DC 1-3	FW-FIRE-G 7-8	MA-SAMA-S 1
FW-VEG-PJS-DC 4-5	FW-WFP-O 1	FW-MM-DC 1	MA-SAMA-S 5
FW-VEG-SAGE-DC 5	FW-WFP-G 1-7	FW-MM-G 1-2	MA-SAMA-S 7
FW-VEG-SAGE-DC 9	FW-NIS-DC 1	DA-WILD-DC 1	MA-SAMA-G 1

### **Intrusive Human Activity (Recreational Disturbance):**

Intrusive human activity often creates issues for at-risk species where recreational activities impact biological function. It consists primarily of anthropomorphic activities that disrupt critical life stages of at-risk species such as reproduction, nesting/calving, or even feeding, especially during times of high-stress (e.g., breeding season, winter). Harassing activities include but are not limited to human presence, indiscriminate shooting, harassment from people and domestic dogs, and picking or digging of plants. At-risk species on the Carson National Forest are known to be negatively impacted by these activities. See table 93 for plan components that address intrusive human activity.

**Table 93. Intrusive human activity plan components**

Plan Component Code	Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 2	FW-VEG-MCD-G 6	FW-WFP-G 1-4	DA-BOT-G 1-2
FW-VEG-DC 14	FW-VEG-PPF-G 8	FW-WFP-G 7	MA-RWMA-DC 2
FW-VEG-DC 20	FW-WSW-DC 2	FW-REC-G 1	MA-VVMA-DC 1-2
FW-VEG-G 1-3	FW-CAM-G 1	FW-TFA-S 3	MA-VVMA-S 1-3
FW-VEG-ALP-G 2	FW-CRF-DC 1	FW-TFA-G 9	MA-VVMA-G 2
FW-VEG-SFF-G 5	FW-CRF-G 2-3	FW-SU-DC 8	MA-SAMA-DC 1-2
FW-VEG-ASP-G 4	FW-WFP-DC 1-3	FW-FIRE-G 7	MA-SAMA-S 1-2
FW-VEG-MCW-G 6	FW-WFP-DC 7	DA-WILD-DC 1	MA-SAMA-G 1

### Pesticides or Chemical Retardant:

Some chemical applications pose a concern to at-risk species populations. It is well known that many bird species are highly susceptible to pesticides. Pesticides were shown to cause reproductive failure in peregrine falcons as well as many other species. Pesticides can also have beneficial impacts to at-risk species, when pesticides are used to manage non-native species population. Excessive non-native species population can have detrimental effect to native at-risk species populations. Pesticide use is highly regulated on the forest, impacts from off the forest may still be an issue.

A greater risk from direct chemical impact on the forest may come from the use of chemical fire retardant used to fight forest fires. Impacts from chemical fire retardant application have been analyzed in a separate analysis for all national forests within region 3. At-risk species on the Carson National Forest are known to be impacted by certain chemical applications. Plan components related to pesticides or chemical application can be found in table 94.

**Table 94. Pesticides or chemical application plan components**

Plan Component Code	Plan Component Code	Plan Component Code
FW-SL-DC 6	FW-WSW-RMZ-STM-DC 5	FW-NIS-G 3-4
FW-WSW-RMZ-G 3-4	FW-WSW-RMZ-STM-S 2	FW-AIR-DC 4
FW-WSW-DC 2	FW-WSW-RMZ-SNS-DC 7	FW-FIRE-S 2
FW-WSW-DC 7	FW-WSW-RMZ-WB-S 2	FW-FIRE-S 6
FW-WSW-G 2	FW-WFP-DC 1-3	FW-FIRE-G 4
FW-WSW-RMZ-G 4	FW-WFP-G 1-2	DA-ZOO-S 1

### Introduced Disease or Unnatural Spread:

Unnatural mortality in wildlife may occur when pathogens are introduced and resultant disease causes population declines of native populations, especially at-risk species. Disease creates a characteristic set of signs and symptoms that may affect the whole body or any part of a plant or animal. It usually results in mortality or decreased vigor in species that are impacted by disease outbreaks. Historically, many populations were widespread and redundant (many scattered small populations) which made them more resilient to disease. If a disease event were to occur, nearby populations could then move in to bolster surviving individuals to quickly restore the population. Populations that have now become more isolated cannot respond as quickly and may ultimately suffer from reduced gene flow.

Another factor associated with disease is unnatural spread. This can occur when human activities move pathogens faster and over greater distances than what naturally occurs. For example, pathogens found in one water body, may take a long time to, or may never, impact another water body that is a significant distance away. Currently, with increased human travels from one location to another, the likelihood of infecting other areas increases significantly. It is well documented that many pathogens were introduced into new areas through human activities such as boating, spelunking, and other recreational activities. Some of the diseases that were known to occur on the Carson National Forest include but are not limited to chytrid fungus, sylvatic plague, whirling disease, and West Nile virus. Introduced disease or unnatural spread plan components are found in table 95.

**Table 95. Introduced disease or unnatural spread plan components**

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-G 1-3	FW-WFP-DC 11	FW-FIRE-G 8
FW-VEG-ALP-DC 5	FW-WFP-G 1-2	FW-SU-S 3
FW-VEG-BP-G 1	FW-NIS-DC 1	DA-WILD-DC 1
FW-WSW-DC 2	FW-NIS-S 1-3	DA-WILD-S 5
FW-WSW-RMZ-STM-S 1	FW-NIS-G 1	DA-WSR-S 4
FW-WSW-RMZ-WB-DC 1-2	FW-NIS-G 3	DA-IRA-DC 1
FW-WSW-RMZ-WB-S 1	FW-GRZ-DC 4	MA-RWMA-DC 2
FW-WSW-RMZ-SNS-DC 1-2	FW-GRZ-S 4	MA-GMMA-S 2
FW-CAM-G 2	FW-GRZ-G 8	MA-VVMA-DC 1
FW-WFP-DC 1-4	FW-FIRE-G 2-3	MA-SAMA-DC 1

### Human-made Features (Mortality/Altered Behavior):

Impacts to at-risk species may occur when manmade structures result in direct mortality of at-risk species either by entrapment or collision. Obstructions may consist of obstacles or barriers that may prevent animals from moving from one place to another to fulfill basic life cycle needs or may actually cause direct mortality due to collision and forceful striking (e.g., wind turbines, cell towers, facilities, or fences), prolonged entanglement (e.g. barbed wire), or entrapment (e.g. water troughs). Species that are known to be at-risk on the Carson National Forest are occasionally known to be impacted by manmade features that cause direct mortality. Plan components that address human-made features (mortality/altered behavior) are listed in table 96.

**Table 96. Human-made features plan components**

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 5	FW-WFP-G 6	FW-SU-G 1-5
FW-VEG-DC 14	FW-WFP-G 8	FW-LAND-G 1
FW-VEG-DC 20	FW-GRZ-DC 7	DA-WILD-DC 3
FW-VEG-G 1-3	FW-GRZ-G 3-4	DA-IRA-S 1
FW-WSW-DC 4	FW-GRZ-S 2-3	DA-NTRL-G 10
FW-WSW-G 2	FW-REC-S 1-2	MA-RWMA-DC 3
FW-WSW-G 4	FW-REC-G 1	MA-RWMA-S 3
FW-WSW-RMZ-DC 5	FW-REC-G 3-5	MA-RWMA-S 6
FW-WSW-RMZ-G 2	FW-TFA-DC 4-5	MA-RWMA-G 5

<b>Plan Component Code</b>	<b>Plan Component Code</b>	<b>Plan Component Code</b>
FW-WSW-RMZ-STM-DC 2-3	FW-TFA-O1	MA-EWSR-G 1
FW-WSW-RMZ-SNS-DC 6	FW-TFA-S 1-3	MA-DEVRES-G 3
FW-WSW-RMZ-WR-S 2	FW-TFA-G 1-9	MA-JICMA-S 7
FW-WFP-DC 2-5	FW-FAC-G 1-2	MA-VVMA-S 4-6
FW-WFP-O 4-5	FW-SCEN-G 1	MA-VVMA-G 1-2
FW-WFP-G 1-2	FW-SU-DC 5	MA-SAMA-S 1-6

## Section 3. Canada Lynx Southern Rockies Management Direction Cross-walk

Canada lynx (*Lynx canadensis*) is not typically found on the Carson National Forest, since the forest naturally lacks the physical and biological features necessary to sustain a population (USDI FWS 2014a). Historically, the Carson National Forest did not support naturally resident lynx populations (USDI FWS 2014a). In 1999, Canada lynx were reintroduced into southern Colorado, and on occasion an individual lynx may roam out of Colorado onto the Carson National Forest in New Mexico. As Canada lynx is not known to den or breed on the forest, Lynx Analysis Units have not been established on the Carson National Forest, and the US Fish and Wildlife Service has not recommended the Forest Service to do so. When this species does roam into New Mexico (potential linkages), it is usually confined to mostly the mid- to high-elevation spruce fir and aspen forests at 9,800 to 12,000 feet elevation (Spruce Fir Forest and Aspen vegetation communities) (Koehler and Brittell 1990; Ruggiero et al. 1999). As such, Carson National Forest plan components for benefitting lynx will be confined to spruce fir and aspen ecosystems.

Since this species is a federally listed species, the Endangered Species Act requires consultation with the US Fish and Wildlife Service (USFWS) during the NEPA process on any management activities that may affect lynx or its habitat. Since a revised forest plan will provide management direction in potential lynx habitat on the Carson National Forest, consultation with the USFWS will take place. A draft proposed plan was posted on the forest's website for public review in July 2017. Several comments and requests from the public were made concerning how lynx is covered in the Carson National Forest's draft proposed plan and that the Southern Rockies Management Direction be included in the Carson's draft proposed plan. The text below displays the Southern Rockies Management Direction and the corresponding Carson National Forest's draft proposed plan components that correspond to this direction.

**Southern Rockies Management Direction Objective All O1:** Maintain or restore lynx habitat connectivity in and between Lynx Analysis Units, and in linkage areas.

Plan Component	Plan Component	Plan Component
<a href="#">See Section 4</a>	FW-WFP-O 4	FW-WFP-O 5

**Southern Rockies Management Direction Standard All S1:** New or expanded permanent development and vegetation management projects must maintain habitat connectivity in an Lynx Analysis Unit and/or linkage are.

**Corresponding Carson National Forest Plan Component(s):** [Habitat Connectivity Plan Components](#)

**Southern Rockies Management Direction Guideline ALL G1:** Methods to avoid or reduce effects on lynx should be used when constructing or reconstructing highways or forest highways across federal land. Methods could include fencing, underpasses or overpasses.

**Corresponding Carson National Forest Plan Component:** FW-TFA-G 7

**Southern Rockies Management Direction Standard Lynx Analysis Unit S1:** Changes in Lynx Analysis Unit boundaries shall be based on site-specific habitat information and after review by the Forest Service Regional Office.

**Corresponding Carson National Forest Plan Component:** *Not applicable as do not have Lynx Analysis Units, or denning/ breeding lynx*

**Southern Rockies Management Direction Objective VEG O1:** Manage vegetation to mimic or approximate natural succession and disturbance processes while maintaining habitat components necessary for the conservation of lynx.

**Table 97. Corresponding Carson plan components for SRM VEG O1**

Plan Component Code	Plan Component Code
FW-VEG-DC 1	FW-VEG-SFF-G 1
FW-VEG-DC 3-7	FW-VEG-ASP-DC 1
FW-VEG-DC 14	FW-VEG-ASP-DC 4-7
FW-VEG-DC 20-21	FW-VEG-ASP-G 1
FW-VEG-G 1-3	FW-WFP-DC 2-3
FW-VEG-SFF-DC 2-4	FW-FFP-DC 4-5
FW-VEG-SFF-DC 9-13	FW-FFP-S 8
FW-VEG-SFF-DC 16	FW-FIRE-DC 2

**Southern Rockies Management Direction Objective VEG O2:** Provide a mosaic of habitat conditions through time that support dense horizontal cover, and high densities of snowshoe hare. Provide winter snowshoe hare habitat in both the stand initiation structural stage and in mature, multi-story conifer vegetation.

**Table 98. Corresponding Carson plan components for SRM VEG O2**

Plan Component Code	Plan Component Code
FW-VEG-DC 1	FW-VEG-ASP-DC 4-5
FW-VEG-DC 3-7	FW-VEG-ASP-DC 8
FW-VEG-DC 14	FW-VEG-ASP-G 1
FW-VEG-DC 20-21	FW-WFP-DC 2-3
FW-VEG-G 1-3	FW-WFP-O 1
FW-VEG-SFF-DC 2-4	FW-FFP-DC 4-5
FW-VEG-SFF-DC 9-13	FW-FFP-S 8
FW-VEG-SFF-DC 16	FW-FIRE-DC 2
FW-VEG-ASP-DC 1	FW-FIRE-G1

**Southern Rockies Management Direction Objective VEG O3:** Conduct fire use activities to restore ecological processes and maintain or improve lynx habitat.

**Corresponding Carson National Forest Plan Component(s):** FW-FIRE-DC 2 and FW-FIRE-G1

**Southern Rockies Management Direction Objective VEG O4:** Focus vegetation management in areas that have potential to improve winter snowshoe hare habitat, but presently have poorly developed understories that lack dense horizontal cover.

**Corresponding Carson National Forest Plan Component(s): FW-WFP-O 113**

**Southern Rockies Management Direction Standard VEG S1:** Where and to what this applies: Standard VEG S1 applies to all vegetation management projects that regenerate forested stands, except for fuel treatment projects within the wildland-urban interface as defined by HFRA17, subject to the following limitation:

Fuel treatment projects within the wildland-urban interface that do not meet Standards VEG S1, VEG S2, VEG S5, or VEG S6 shall occur on no more than 3 percent (cumulatively) of lynx habitat on each administrative unit (a National Forest or administratively combined National Forests). In addition, fuel treatment projects may not result in more than three adjacent Lynx Analysis Units exceeding the standard. For fuel treatment projects within the wildland-urban interface see guideline VEG G10.

The standard: Unless a broad scale assessment has been completed that substantiates different historic levels of stand initiation structural stages limit disturbance in each Lynx Analysis Unit as follows: If more than 30 percent of the lynx habitat in an Lynx Analysis Unit is currently in a stand initiation structural stage that does not yet provide winter snowshoe hare habitat, no additional habitat may be regenerated by vegetation management projects.

**Table 99. Corresponding Carson plan components for SRM VEG S1**

<b>Plan Component Code</b>	<b>Plan Component Code</b>
Do not have Lynx Analysis Units, or denning/ breeding lynx	FW-VEG-ASP-DC 4-6
FW-VEG-DC 1	FW-VEG-ASP-DC 8
FW-VEG-DC 3-7	FW-VEG-ASP-G 1
FW-VEG-DC 14	FW-WFP-DC 2-3
FW-VEG-DC 20-21	FW-WFP-G 1-2
FW-VEG-G 1-3	FW-FFP-S 6
FW-VEG-SFF-DC 2-4	FW-FFP-S 8
FW-VEG-SFF-DC 9-13	FW-FFP-G 1-2
FW-VEG-SFF-DC 16	FW-FIRE-DC 2
FW-VEG-ASP-DC 1	FW-FIRE-G1

<sup>13</sup> Objectives are to improve highly departed ecosystems for all wildlife. Where this objective is implemented is a project level decision as district personnel know what habitat is in most need of restoration. Objectives do not give prioritization.

**Southern Rockies Management Direction Standard VEG S2:** Where and to what this applies: Standard VEG S2 applies to all timber management projects that regenerate forests, except for fuel treatment projects within the wildland-urban interface as defined by HFRA17, subject to the following limitation:

Fuel treatment projects within the wildland-urban interface that do not meet Standards VEG S1, VEG S2, VEG S5, or VEG S6 shall occur on no more than 3 percent (cumulatively) of lynx habitat on each administrative unit (a National Forest or administratively combined National Forests). For fuel treatment projects within the wildland-urban interface see guideline VEG G10.

The standard: Timber management projects shall not regenerate more than 15 percent of lynx habitat on National Forest System lands within a Lynx Analysis Unit in a ten-year period. This 15 percent includes the entire stand within an even-age regeneration area, and only the patch opening areas within group selections. Salvage harvest within stands killed by insect epidemics, wildfire, etc. does not add to the 15 percent, unless the harvest treatment would cause the lynx habitat to change to an unsuitable condition.

**Table 100. Corresponding Carson plan components for SRM VEG S2**

Plan Component Code	Plan Component Code	Plan Component Code
Do not have Lynx Analysis Units, or denning/ breeding lynx	FW-VEG-SFF-DC 6	FW-WFP-DC 2-3
FW-VEG-DC 1-6	FW-VEG-SFF-DC 9-13	FW-WFP-G 1-2
FW-VEG-DC 8	FW-VEG-SFF-DC 16	FW-FFP-S 6
FW-VEG-DC 14	FW-VEG-ASP-DC 1	FW-FFP-S 8
FW-VEG-DC 20-21	FW-VEG-ASP-DC 4-6	FW-FFP-G 1-2
FW-VEG-G 1-3	FW-VEG-ASP-DC 8	FW-FIRE-DC 2
FW-VEG-SFF-DC 2-4	FW-VEG-ASP-G 1	FW-FIRE-G1

**Southern Rockies Management Direction Standard VEG S5:** The Standard: Precommercial thinning practices and similar activities intended to reduce seedling/sapling density are subject to the following limitations from the stand initiation structural stage until the stands no longer provide winter snowshoe hare habitat.

Precommercial thinning may occur only:

- 1) Within 200 feet of administrative sites, dwellings, or outbuildings; or
- 2) For research studies or genetic tree tests evaluating genetically improved reforestation stock; or
- 3) For conifer removal in aspen, or daylight thinning around individual aspen trees, where aspen is in decline; or
- 4) Based on new information that is peer reviewed and accepted by the regional/state levels of the Forest Service and FWS, where a written determination states:
  - a) That a project is not likely to adversely affect lynx; or
  - b) That a project is likely to have short term adverse effects on lynx or its habitat but would result in long-term benefits to lynx and its habitat.

- 5) In addition to the above exceptions (and above and beyond the three percent limitation for fuels projects within the wildland-urban interface), precommercial thinning may occur provided that:
- a) The additional precommercial thinning does not exceed one percent of the lynx habitat in any Lynx Analysis Unit for the life of this amendment, and the amount and distribution of winter snowshoe hare habitat within the Lynx Analysis Unit must be provided through appropriate site-specific analysis and consultation; and
  - b) Precommercial thinning in Lynx Analysis Units with more than 30 percent of the lynx habitat currently in the stand initiation structural stage is limited to areas that do not yet provide winter snowshoe hare habitat; and
  - c) Projects are designed to maintain lynx habitat connectivity and provide snowshoe hare habitat over the long term; and
  - d) Monitoring is used to determine snowshoe hare response.

Exceptions 2 and 3 may not occur in any Lynx Analysis Unit in which VEG S1 is exceeded (i.e., more than 30 percent of Lynx Analysis Unit in stand initiation structural stage). Note: This standard is intended to provide snowshoe hare habitat while permitting some thinning, to explore methods to sustain snowshoe hare habitat over time, reduce hazardous fuels, improve forest health, and increase timber production. Project design must ensure any precommercial thinning provides an appropriate amount and distribution of snowshoe hare habitat with each Lynx Analysis Unit over time, and maintains lynx habitat connectivity within and between Lynx Analysis Units. Project design should focus on creating irregular shapes for the thinning units, creating mosaics of thinned and unthinned areas, and using variable density thinning, etc.

**Table 101. Corresponding Carson plan components for SRM VEG S5**

Plan Component Code	Plan Component Code
Do not have Lynx Analysis Units, or denning/ breeding lynx	<a href="#">See Section 4</a>
FW-VEG-DC 1	FW-VEG-ASP-DC 8
FW-VEG-DC 3-7	FW-VEG-ASP-G 1
FW-VEG-DC 14	FW-WFP-DC 2-3
FW-VEG-DC 20-21	FW-WFP-G 1-2
FW-VEG-G 1-3	FW-FFP-S 6
FW-VEG-SFF-DC 2-4	FW-FFP-S 8
FW-VEG-SFF-DC 6	FW-FFP-G 1-2
FW-VEG-SFF-DC 9-13	FW-FIRE-DC 2
FW-VEG-SFF-DC 16	FW-FIRE-G1
FW-VEG-ASP-DC 1	FW-WFP-DC 2-3

**Southern Rockies Management Direction Standard VEG S6:** Where and to what this applies: Standard VEG S6 applies to all vegetation management practices within multi-story mature or late successional conifer forest, except for fuel treatment projects within the wildland-urban interface as defined by HFRA17, subject to the following limitation:

Fuel treatment projects within the wildland-urban interface that do not meet Standards VEG S1, VEG S2, VEG S5, or VEG S6 shall occur on no more than 3 percent (cumulatively) of lynx habitat on each administrative unit (a National Forest or administratively combined National Forests). For fuel treatment projects within the wildland-urban interface see guideline VEG G10.

The Standard: Vegetation management projects<sup>36</sup> that reduce winter snowshoe hare habitat in multi-story mature or late successional conifer forests may occur only:

- 1) Within 200 feet of administrative sites, dwellings, outbuildings, recreation sites, and special use permit improvements, including infrastructure within permitted ski area boundaries; or
- 2) For research studies or genetic tree tests evaluating genetically improved reforestation stock; or
- 3) For incidental removal during salvage harvest<sup>41</sup> (e.g., removal due to location of skid trails); or
- 4) Where uneven-aged management (single tree and small group selection) practices are employed to maintain and encourage multi-story attributes as part of gap dynamics. Project design must be consistent with VEG O1, O2 and O4, except where impacts to areas of dense horizontal cover are incidental to activities under this exception (e.g., construction of skid trails). Exceptions 2 and 4 may not occur in any Lynx Analysis Unit in which VEG S1 is exceeded.

**Table 102. Corresponding Carson plan components for SRM VEG S6**

Plan Component Code	Plan Component Code	Plan Component Code
Do not have Lynx Analysis Units, or denning/ breeding lynx	FW-VEG-SFF-DC 6	FW-WFP-DC 2-3
FW-VEG-DC 1	FW-VEG-SFF-DC 9-13	FW-WFP-G 1-2
FW-VEG-DC 3-7	FW-VEG-SFF-DC 16	FW-FFP-S 6
FW-VEG-DC 14	FW-VEG-ASP-DC 1	FW-FFP-S 8
FW-VEG-DC 20-21	FW-VEG-ASP-DC 4-6	FW-FFP-G 1-2
FW-VEG-G 1-3	FW-VEG-ASP-DC 8	FW-FIRE-DC 2
FW-VEG-SFF-DC 2-4	FW-VEG-ASP-G 1	FW-FIRE-G1

**Southern Rockies Management Direction Guideline VEG G1:** Vegetation management projects should be planned to recruit a high density of conifers, hardwoods, and shrubs where such habitat is scarce or not available. Priority for treatment should be given to stem-exclusion, closed-canopy structural stage stands to enhance habitat conditions for lynx or their prey (e.g. mesic, monotypic lodgepole stands). Winter snowshoe hare habitat should be near denning habitat.

**Table 103. Corresponding Carson plan components for SRM VEG G1**

Plan Component Code	Plan Component Code	Plan Component Code
Do not have Lynx Analysis Units, or denning/ breeding lynx	FW-VEG-DC 20-21	FW-VEG-ASP-DC 1
FW-VEG-DC 1	FW-VEG-G 1-3	FW-VEG-ASP-DC 5
FW-VEG-DC 3	FW-VEG-SFF-DC 11	FW-WFP-DC 2-3
FW-VEG-DC 7	FW-VEG-SFF-DC 9-13	FW-WFP-O 1
FW-VEG-DC 14	FW-VEG-SFF-DC 16	FW-WFP-G 1-2

**Southern Rockies Management Direction Guideline VEG G4:** Prescribed fire activities should not create permanent travel routes that facilitate snow compaction. Constructing permanent firebreaks on ridges or saddles should be avoided.

**Table 104. Corresponding Carson plan components for SRM VEG G4**

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-TFA-DC 5	FW-TFA-G 6
FW-WFP-DC 3	FW-TFA-S 2	FW-TFA-G 8
FW-WFP-G 1-2	FW-TFA-G 2-3	FW-FIRE-DC 2

**Southern Rockies Management Direction Guideline VEG G5:** Habitat for alternate prey species, primarily red squirrel, should be provided in each Lynx Analysis Unit.

**Table 105. Corresponding Carson plan components for SRM VEG G5**

Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-VEG-ASP-DC 1-9
FW-VEG-G 1-3	FW-WFP-DC 1-3
FW-VEG-SFF-DC 1-17	FW-WFP-G 1-2

**Southern Rockies Management Direction Guideline VEG G10:** Fuel treatment projects within the wildland-urban interface as defined by HFRA17 should be designed considering Standards VEG S1, S2, S5, and S6 to promote lynx conservation.

**Table 106. Corresponding Carson plan components for SRM VEG G10**

Plan Component Code	Plan Component Code	Plan Component Code
Do not have Lynx Analysis Units, or denning/ breeding lynx	FW-VEG-SFF-DC 2-11	<a href="#">See Section 4</a>
FW-VEG-DC 1	FW-VEG-SFF-DC 13	FW-WFP-G 1-2
FW-VEG-DC 3-7	FW-VEG-SFF-DC 16	FW-FFP-S 6
FW-VEG-DC 7	FW-VEG-ASP-DC 1	FW-FFP-S 8

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-VEG-ASP-DC 4-8	FW-FFP-G 1-2
FW-VEG-DC 20-21	FW-VEG-ASP-G 1	FW-FIRE-DC 2
FW-VEG-G 1-3	FW-WFP-DC 2-3	FW-FIRE-G 1

**Southern Rockies Management Direction Guideline VEG G11:** Denning habitat should be distributed in each Lynx Analysis Unit in the form of pockets of large amounts of large woody debris, either down logs or root wads, or large piles of small wind thrown trees (“jack-strawed” piles). If denning habitat appears to be lacking in the Lynx Analysis Unit, then projects should be designed to retain some coarse woody debris, piles, or residual trees to provide denning habitat in the future.

**Table 107. Corresponding Carson plan components for SRM VEG G11**

Plan Component Code	Plan Component Code
FW-VEG-DC 1	FW-VEG-SFF-DC 16
FW-VEG-DC 3-7	FW-VEG-ASP-DC 1
FW-VEG-DC 14	FW-VEG-ASP-DC 4-6
FW-VEG-DC 20-21	FW-VEG-ASP-DC 8
FW-VEG-G 1-3	FW-VEG-ASP-G 1
FW-VEG-SFF-DC 2-4	FW-WFP-DC 2-3
FW-VEG-SFF-DC 9-13	FW-WFP-G 1-2

**Southern Rockies Management Direction Objective GRAZ O1:** Manage livestock grazing to be compatible with improving or maintaining lynx habitat.

**Table 108. Corresponding Carson plan components for SRM GRAZ O1**

Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-WFP-DC 2-3	FW-GRZ-DC 7
FW-VEG-DC 20-21	FW-WFP-G 1-2	FW-GRZ-S 1
FW-VEG-G 1-3	FW-GRZ-DC 4-5	FW-GRZ-G 1

**Southern Rockies Management Direction Guideline GRAZ G1:** In fire- and harvest-created openings, livestock grazing should be managed so impacts do not prevent shrubs and trees from regenerating.

**Table 109. Corresponding Carson plan components for SRM GRAZ G1**

Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-GRZ-DC 4-5
FW-VEG-DC 20-21	FW-GRZ-DC 7
FW-VEG-G 1-3	FW-GRZ-S 1
FW-WFP-DC 2-3	FW-GRZ-G 1
FW-WFP-G 1-2	FW-GRZ-G 6-7

**Southern Rockies Management Direction Guideline GRAZ G2:** In aspen stands, livestock grazing should be managed to contribute to the long-term health and sustainability of aspen.

**Table 110. Corresponding Carson plan components for SRM GRAZ G2**

Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-WFP-G 1-2
FW-VEG-DC 20-21	FW-GRZ-DC 4-5
FW-VEG-G 1-3	FW-GRZ-S 1
FW-VEG-ASP-DC 1-9	FW-GRZ-G 1
FW-WFP-DC 2-3	FW-GRZ-G 6-7

**Southern Rockies Management Direction Guideline GRAZ G3:** In riparian areas and willow carrs, livestock grazing should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.

**Table 111. Corresponding Carson plan components for SRM GRAZ G3**

Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-WSW-RMZ-FSSR-DC 5-6
FW-VEG-DC 20-21	FW-WSW-RMZ-FSSR-DC 8
FW-VEG-G 1-3	FW-WSW-RMZ-FSSR-DC 12
FW-WSW-DC 2	FW-WSW-RMZ-FSSR-G 1
FW-WSW-DC 6	FW-WFP-DC 2-3
FW-WSW-G 1	FW-WFP-G 1-2
FW-WSW-RMZ-DC 1-4	FW-GRZ-DC 4-5
FW-WSW-RMZ-G 2	FW-GRZ-S 1
FW-WSW-RMZ-FSSR-DC 1-3	FW-GRZ-G 1-2

**Southern Rockies Management Direction Guideline GRAZ G4:** In shrub-steppe habitats, livestock grazing should be managed in the elevation ranges of forested lynx habitat in Lynx Analysis Units, to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.

**Table 112. Corresponding Carson plan components for SRM GRAZ G4**

Plan Component Code	Plan Component Code	Plan Component Code	Plan Component Code
FW-VEG-DC 1	FW-VEG-SFF-DC 2-4	FW-VEG-ASP-DC 1	FW-WFP-G 1-2
FW-VEG-DC 3-7	FW-VEG-SFF-DC 9-11	FW-VEG-ASP-DC 4-6	FW-GRZ-DC 4-5
FW-VEG-DC 14	FW-VEG-SFF-DC 13	FW-VEG-ASP-DC 8	FW-GRZ-DC 7
FW-VEG-DC 20-21	FW-VEG-SFF-DC 16	FW-VEG-ASP-G 1	FW-GRZ-S 1
FW-VEG-G 1-3	FW-VEG-SFF-G 1	FW-WFP-DC 2-3	FW-GRZ-G 1-2

**Southern Rockies Management Direction Objective HU O1:** Maintain the lynx’s natural competitive advantage over other predators in deep snow, by discouraging the expansion of snow-compacting activities in lynx habitat.

**Table 113. Corresponding Carson plan components for SRM HU 01**

Plan Component Code	Plan Component Code
FW-VEG-DC 14	FW-WFP-DC 2-3
FW-VEG-DC 20-21	FW-WFP-G 1-2
FW-VEG-G 1-3	FW-TFA-S 1-2

**Southern Rockies Management Direction Objective HU 02:** Manage recreational activities to maintain lynx habitat and connectivity.

**Table 114. Corresponding Carson plan components for SRM HU 02**

Plan Component Code	Plan Component Code
<a href="#">See Section 4</a>	FW-WFP-O 4-5
FW-WFP-DC 3	FW-WFP-G 1-2
FW-WFP-DC 7	FW-REC-G 1

**Southern Rockies Management Direction Objective HU 03:** Concentrate activities in existing developed areas, rather than developing new areas in lynx habitat.

**Table 115. Corresponding Carson plan components for SRM HU 03**

Plan Component Code	Plan Component Code
FW-WFP-DC 3	FW-WFP-G 1-2
FW-WFP-DC 7	FW-LAND-G 1

**Southern Rockies Management Direction Objective HU 04:** Provide for lynx habitat needs and connectivity when developing new or expanding existing developed recreation sites or ski areas.

**Table 116. Corresponding Carson plan components for SRM HU 04**

Plan Component Code	Plan Component Code
<a href="#">See Section 4</a>	FW-VEG-ASP-DC 4-6
FW-VEG-DC 1	FW-VEG-ASP-DC 8
FW-VEG-DC 3-7	FW-VEG-ASP-G 1
FW-VEG-DC 14	FW-WFP-DC 3
FW-VEG-DC 20-21	FW-WFP-DC 7
FW-VEG-G 1-3	FW-WFP-O 4-5
FW-VEG-SFF-DC 2-4	FW-WFP-G 1-2
FW-VEG-ASP-DC 1	FW-REC-G 1

**Southern Rockies Management Direction Objective HU 05:** Manage human activities, such as special uses, mineral and oil and gas exploration and development, and placement of utility transmission corridors, to reduce impacts on lynx and lynx habitat.

**Table 117. Corresponding Carson plan components for SRM HU 05**

Plan Component Code	Plan Component Code
FW-VEG-G 1-3	FW-SU-S 2
FW-WFP-DC 3	FW-SU-G 1-3
FW-WFP-DC 7	FW-LAND-G 1
FW-WFP-G 1-2	FW-MM-DC 1-2
FW-SU-DC 3-4	FW-MM-S 4-5

**Southern Rockies Management Direction Objective HU O6:** Reduce adverse highway effects on lynx by working cooperatively with other agencies to provide for lynx movement and habitat connectivity, and to reduce the potential for lynx mortality.

**Table 118. Corresponding Carson plan components for SRM HU 06**

Plan Component Code	Plan Component Code
<a href="#">See Section 4</a>	FW-TFA-G 1-3
FW-TFA-DC 4-5	FW-TFA-G 7-8

**Southern Rockies Management Direction Guideline HU G1:** When developing or expanding ski areas, provisions should be made for adequately sized inter-trail islands that include coarse woody debris, so winter snowshoe hare habitat is maintained.

**Table 119. Corresponding Carson plan components for SRM HU G1**

Plan Component Code
FW-VEG-G 1-3
FW-WFP-DC 3
FW-WFP-DC 7
FW-WFP-G 1-2
MA-DEVRES-DC 1

**Southern Rockies Management Direction Guideline HU G2:** When developing or expanding ski areas, lynx foraging habitat should be provided consistent with the ski area’s operational needs, especially where lynx habitat occurs as narrow bands of coniferous forest across mountain slopes.

**Table 120. Corresponding Carson plan components for SRM HU G2**

Plan Component Code	Plan Component Code
FW-WFP-DC 3	FW-WFP-G 1-2
FW-WFP-DC 7	MA-DEVRES-DC 1

**Southern Rockies Management Direction Guideline HU G3:** Recreation development and recreational operational uses should be planned to provide for lynx movement and to maintain the effectiveness of lynx habitat.

**Table 121. Corresponding Carson plan components for SRM HU G3**

Plan Component Code
<a href="#">See Section 4</a>
FW-WFP-DC 3
FW-WFP-DC 7
FW-WFP-G 1-2
FW-REC-G 1

**Southern Rockies Management Direction Guideline HU G4:** Remote monitoring of mineral and energy development sites and facilities should be encouraged to reduce snow compaction.

**Table 122. Corresponding Carson plan components for SRM HU G4**

Plan Component Code	Plan Component Code
FW-WFP-DC 3	FW-TFA-S 2
FW-WFP-DC 7	FW-MM-DC 1
FW-WFP-G 1-2	FW-MM-S 5

**Southern Rockies Management Direction Guideline HU G5:** A reclamation plan should be developed (e.g., road reclamation and vegetation rehabilitation) for closed mineral and energy development sites and facilities that promote the restoration of lynx habitat.

**Corresponding Carson National Forest Plan Component: FW-MM- S3**

**Southern Rockies Management Direction Guideline HU G6:** Methods to avoid or reduce effects to lynx habitat connectivity should be used when upgrading unpaved roads to maintenance levels 4 or 5, where the result would be increased traffic speeds and volumes or contribute to development or increases in human activity.

**Table 123. Corresponding Carson plan components for SRM HU G6**

Plan Component Code	Plan Component Code
<a href="#">See Section 4</a>	FW-WFP-G 1-2
FW-VEG-G 1-3	FW-TFA-G 2
FW-WFP-DC 3	FW-TFA-G 6
FW-WFP-DC 7	FW-TFA-G 8

**Southern Rockies Management Direction Guideline HU G7:** New permanent roads should not be built on ridge-tops and saddles, or in areas identified as important for lynx habitat connectivity. New permanent roads and trails should be situated away from forested stringers.

**Table 124. Corresponding Carson plan components for SRM HU G7**

Plan Component Code	Plan Component Code
FW-WFP-DC 3	FW-TFA-G 1-2
FW-WFP-DC 7	FW-TFA-G 6
FW-WFP-G 1-2	FW-TFA-G 8

**Southern Rockies Management Direction Guideline HU G8:** Cutting brush along low-speed, low-traffic-volume roads should be done to the minimum level necessary to provide for public safety.

**Table 125. Corresponding Carson plan components for SRM HU G8**

Plan Component Code	Plan Component Code
FW-WFP-DC 3	FW-TFA-G 6
FW-WFP-G 1-2	FW-TFA-G 8

**Southern Rockies Management Direction Guideline HU G9:** If project level analysis determines that new roads adversely affect lynx, then public motorized use should be restricted. Upon project completion, these roads should be reclaimed or decommissioned, if not needed for other management objectives.

**Table 126. Corresponding Carson plan components for SRM HU G9**

Plan Component Code	Plan Component Code
FW-VEG-G 1-3	FW-TFA-DC 5
FW-WFP-DC 3	FW-TFA-G 1-3
FW-WFP-G 1-2	FW-TFA-G 6-8
FW-TFA-DC 1	FW-TFA-G 8

**Southern Rockies Management Direction Guideline HU G10:** Designated over-the-snow routes or designated play areas should not expand outside baseline areas of consistent snow compaction, unless designation serves to consolidate use and improve lynx habitat. This may be calculated on an Lynx Analysis Unit basis, or on a combination of immediately adjacent Lynx Analysis Units.

This does not apply inside permitted ski area boundaries, to winter logging, to rerouting trails for public safety, to accessing private inholdings, or to access regulated by Guideline HU G12. Use the same analysis boundaries for all actions subject to this guideline.

**Table 127. Corresponding Carson plan components for SRM HU G10**

Plan Component Code	Plan Component Code
FW-VEG-G 1-3	FW-WFP-G 1-2
FW-WFP-DC 3	FW-TFA-S 1-2

**Southern Rockies Management Direction Guideline HU G11:** When developing or expanding ski areas and trails, consider locating access roads and lift termini to maintain and provide lynx security habitat.

**Table 128. Corresponding Carson plan components for SRM HU G11**

Plan Component Code	Plan Component Code
FW-WFP-DC 3	MA-DEVRES-DC 1
FW-WFP-DC 7	MA-DEVRES-DC 4
FW-WFP-G 1-2	MA-DEVRES-DC 1-3

**Southern Rockies Management Direction Guideline HU G12:** Winter access for non-recreation special uses and mineral and energy exploration and development should be limited to designated routes or designated over-the snow routes<sup>7</sup>.

**Table 129. Corresponding Carson plan components for SRM HU G12**

Plan Component Code	Plan Component Code
FW-VEG-G 1-3	FW-WFP-G 1-2
FW-WFP-DC 3	FW-TFA-S 1-2

**Southern Rockies Management Direction Objective LINK O1:** In areas of intermingled land ownership, work with landowners to pursue conservation easements, habitat conservation plans, land exchanges, or other solutions to reduce the potential of adverse impacts on lynx and lynx habitat.

**Corresponding Carson National Forest Plan Management Approaches:**

- **Management Approaches for Wildlife, Fish, and Plants 2-4**
- **Management Approaches for Wildlife, Fish, and Plants 8**
- **Management Approaches for Land 1**

**Southern Rockies Management Direction Standard LINK S1:** When highway or forest highway construction or reconstruction is proposed in linkage areas, identify potential highway crossings.

**Table 130. Corresponding Carson plan components for SRM LINK S1**

Plan Component Code	Plan Component Code
FW-VEG-G 1-3	FW-WFP-G 1-2
FW-WFP-DC 3	FW-TFA-G 6-7

**Southern Rockies Management Direction Guideline LINK G1:** National Forest System lands should be retained in public ownership.

**Corresponding Carson National Forest Plan Component(s): FW-LAND-DC 1**

**Southern Rockies Management Direction Guideline LINK G2:** Livestock grazing in shrub-steppe habitats should be managed to contribute to maintaining or achieving a preponderance of mid- or late-seral stages, similar to conditions that would have occurred under historic disturbance regimes.

**Table 131. Corresponding Carson plan components for SRM LINK G2**

Plan Component Code	Plan Component Code
FW-VEG-DC 1	FW-VEG-ASP-DC 1
FW-VEG-DC 3-8	FW-VEG-ASP-DC 4-6
FW-VEG-DC 14	FW-VEG-ASP-DC 8
FW-VEG-DC 20-21	FW-VEG-ASP-G 1
FW-VEG-G 1-3	FW-WFP-DC 2-3
FW-VEG-SFF-DC 2-4	FW-WFP-G 1-2
FW-VEG-SFF-DC 6	FW-GRZ-DC 4-5
FW-VEG-SFF-DC 9-13	FW-GRZ-DC 7
FW-VEG-SFF-DC 16	FW-GRZ-S 1
FW-VEG-SFF-G 1	FW-GRZ-G 1

## Section 4. Habitat Connectivity Plan Components

Habitat connectivity for wildlife is the premise that terrestrial and aquatic animals are able to move freely about their environment in order to access necessary resources or seek other individuals within their species for the purpose of fulfilling basic life-cycle needs. Connectivity may be negatively impacted by two primary issues: impaired ecological conditions and physical obstructions.

Below is a list of the plan components and management approaches related to Habitat Connectivity found within the Draft Proposed Forest Plan.

**Table 132. Habitat connectivity plan components**

Plan Component Code	Plan Component Code	Plan Component Code and Management Approaches
FW-VEG-DC 1-6	FW-VEG-PJO-DC 2-3	FW-WFP-O 4-5
FW-VEG-DC 9	FW-VEG-PJO-DC 9	FW-WFP-G 3-4
FW-VEG-DC 12	FW-VEG-PJO-G 1-5	FW-WFP-G 6-8
FW-VEG-MSG-DC 2-3	FW-VEG-PJS-DC 2-3	WFP Management Approach 3-4
FW-VEG-MSG-DC 5	FW-VEG-PJS-G 1-4	WFP Management Approach 6
FW-VEG-MSG-DC 8	FW-WSW-DC 1-4	FW-NIS-DC 1
FW-VEG-MSG-DC 10-11	FW-WSW-O 1	FW-NIS-O 1
FW-VEG-MSG-DC 14	FW-WSW-G 1	FW-GRZ-S 2-3
FW-VEG-MSG-G 1	FW-WSW-RMZ-DC 1-6	FW-GRZ-G 2
FW-VEG-SFF-DC 2	FW-WSW-RMZ-O 1	FW-REC-S 1-2
FW-VEG-SFF-DC 6	FW-WSW-RMZ-G 2-3	FW-REC-G 3
FW-VEG-SFF-DC 9	FW-WSW-RMZ-STM-DC 1-2	FW-TFA-DC 5
FW-VEG-SFF-DC 16	FW-WSW-RMZ-STM-DC 4	FW-TFA-O 1
FW-VEG-ASP-DC 1	FW-WSW-RMZ-STM-DC 6-9	FW-TFA-S 1-2
FW-VEG-ASP-DC 4	FW-WSW-RMZ-STM-O 1-2	FW-TFA-G 1-3
FW-VEG-ASP-DC 8	FW-WSW-RMZ-STM-G 1	FW-TFA-G 5
FW-VEG-ASP-G 1	FW-WSW-RMZ-WB-DC 1-3	FW-TFA-G 7
FW-VEG-MCW-DC 2	FW-WSW-RMZ-SNS-DC 1-2	FW-FAC-G 2
FW-VEG-MCW-DC 8	FW-WSW-RMZ-SNS-DC 6	FW-SU-S 2
FW-VEG-MCW-DC 15-16	FW-WSW-RMZ-SNS-O 1	FW-SU-G 1-5
FW-VEG-MCW-G 1-2	FW-WSW-RMZ-WR-DC 1	FW-LAND-DC 1
FW-VEG-MCD-DC 2	FW-WSW-RMZ-WR-DC 3	FW-LAND-G 1
FW-VEG-MCD-DC 10	FW-WSW-RMZ-FSSR-DC 5	MA-VVMA-DC 2
FW-VEG-MCD-G 1-2	FW-WSW-RMZ-FSSR-DC 7	MA-SAMA-DC 1-2
FW-VEG-PPF-DC 2	FW-WSW-RMZ-FSSR-G 1-3	MA-SAMA-DC 4
FW-VEG-PPF-DC 9	FW-WFP-DC 1-7	MA-SAMA-S 1-7
FW-VEG-PPF-G 1-4	FW-WFP-DC 9-10	MA-SAMA-G 1

The final environmental impact statement will include **Appendix I – Crosswalk of Previous Plan Components to Revised Plan Components**.

## **Appendix J – Index of Other Supporting Draft Environmental Impact Statement Documentation**

- [Carson National Forest Assessment Report of Ecological, Social, and Economic Conditions, Trends, and Sustainability](#)
- Biological Assessment (under development, available with the final EIS)
- [Recommended Wilderness Assessment](#)
- [Wild and Scenic River Eligibility Evaluation](#)
- [Climate Change Vulnerability Assessment](#)
- [Socioeconomic Vulnerability Assessment](#)

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